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UNITED STATES NAVAL ACADEMY

Annapolis, Maryland

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1962–1963 CATALOGUE OF INFORMATION

Mission of the United States Naval Academy

To develop midshipmen morally, mentally and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to provide graduates who are dedicated to a career of Naval Service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship and government.

UNITED STATES NAVAL ACADEMY

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1962–1963

Reviewed and Approved 5 March 1962

W. R. Smedberg, III
Chief of Naval Personnel

The Brigade Color Guard.

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The Chapel.

This is the Naval Academy

The United States Naval Academy is the undergraduate college of the United States Navy. It was established in 1845 for the sole purpose of providing properly educated and trained officers for the naval service. Graduates of the fully accredited four-year course are awarded the bachelor of science degree and are commissioned ensign, U.S. Navy, or second lieutenant in the U.S. Marine Corps.

The Naval Academy is located in Annapolis, historic capital of Maryland. It is 30 miles east of Washington, D.C., and 25 miles south of Baltimore.

THE YARD

The Naval Academy Yard on the banks of the Severn River comprises 365 acres occupied by 219 major buildings and extensive drill and playing fields. The beautiful setting, where the Severn widens into Chesapeake Bay, is admirably suited for training the midshipmen afloat and for inspiring them with the seaman's love of salt water.

Of all the buildings in the Yard, Bancroft Hall stands out as the center of midshipman activity. It houses the entire Brigade of Midshipmen and provides for most of their daily needs. Among its facilities are tailor and barbershops, post office, medical and dental quarters, soda fountain, bookstore, recreation rooms, a tremendous galley, and the vast Mess Hall where the entire brigade is served at a single sitting.

The academic buildings, named in honor of naval heroes, have well-equipped classrooms and modern scientific laboratories. Throughout the Yard stand monuments honoring the great naval leaders of the past. In the crypt beneath the dome of the Chapel rests the sarcophagus of the Revolutionary War hero, John Paul Jones.

The Superintendent

Rear Admiral John F. Davidson, *U.S. Navy*

A graduate of the Naval Academy, Class of 1929, Admiral Davidson had served on board various battleships and submarines prior to World War II. He was awarded the Legion of Merit with Combat "V" and the Silver Star for heroic service as Commanding Officer of the submarine, USS *Blackfish*. He has served on the staff of Commander, Submarine Training Command, Pacific, and commanded Submarine Division 62, the submarine tender, USS *Orion*, and Submarine Squadron TWO. After attending the Canadian National Defence College, Ontario, Canada, and serving as Head of the Department of English, History and Government at the Naval Academy, he commanded USS *Albany*. In January 1957, he became the Director of the Politico-Military Policy Division in the Office of the Chief of Naval Operations, and in December 1957, he assumed command of Cruiser Division Five. Most recently he has served as Chief, Navy Group, Joint U.S. Military Mission for Aid to Turkey.

The Commandant of Midshipmen

Captain Charles S. Minter, Jr., *U.S. Navy*

Graduated from the Naval Academy in the Class of 1937, Captain Minter first served in USS *Houston.* He was a student aviator at Jacksonville, Florida, in 1941, and served with various patrol squadrons during World War II. After duty as Air Officer in USS *Randolph*, he was assigned to the Patuxent River Naval Air Station, and to the Naval Air Test Center, Patuxent River. From 1950–1953, he commanded Patrol Squadron 28, and served as Operations Officer on the Staff of Fleet Air Wing Two. Captain Minter spent a prior tour at the Naval Academy as Executive Officer of the Physical Education Department during 1953–55. He attended the National War College, and after duty in the Office of the Deputy Chief of Naval Operations for Air, Commanded USS *Albemarle.* He had duty as Assistant Chief of Staff for Readiness, Commander Naval Air Force, Atlantic, and prior to reporting as Commandant in 1961, was Commanding Officer of USS *Intrepid.*

The Secretary Academic Board

Captain Robert W. McNitt, U.S. Navy

Graduated from the Naval Academy in the Class of 1938, Captain McNitt first served in USS *Chicago*. He was Engineering Officer on USS *Rhind* from 1941 to 1942, during which period the *Rhind* engaged in escort operations in the North Atlantic, served with the British Home Fleet, and participated in the invasion of Casablanca. After attending Submarine School in 1942, he completed five combat war patrols with USS *Barb*. He did graduate work at the Naval Post Graduate School and the Massachusetts Institute of Technology where he received his Master's Degree in Ordnance Engineering. He has served as Gunnery Officer USS *Midway*, Naval Assistant to the Technical Director, U.S. Naval Ordnance Laboratory, White Oak, Maryland, Commanding Officer USS *Taylor*, and Assistant Director, Plans and Programs, Research and Development Division, Bureau of Ordnance. He assumed command of Destroyer Division 322 in July 1958, and became Commanding Officer and Director, U.S. Atlantic Fleet ASW Tactical School, Norfolk, Virginia in 1959. Most recently he has commanded Destroyer Squadron 25, Pearl Harbor, Hawaii.

Academic Administration

Superintendent	Rear Admiral John F. Davidson, USN
Flag Lieutenant	Commander William M. A. Greene, USN
Flag Secretary	Lieutenant Commander Robert P. Nottingham, USN
Commandant of Midshipmen	Captain Charles H. Minter, Jr., USN
Executive Officer	Captain Julian T. Burke, Jr., USN
Chief of staff and Administrative Aide	Captain Charles K. Miller, USN
Secretary Academic Board and Academic Aide to Superintendent	Captain Robert W. McNitt, USN
Assistant Secretary Academic Board	Major Richard A. Savage, USMC
Assistant to Superintendent for Academic Matters	Senior Professor William S. Shields
Registrar	Professor Richard E. Heise
Admissions Officer	Mr. John W. Rogers

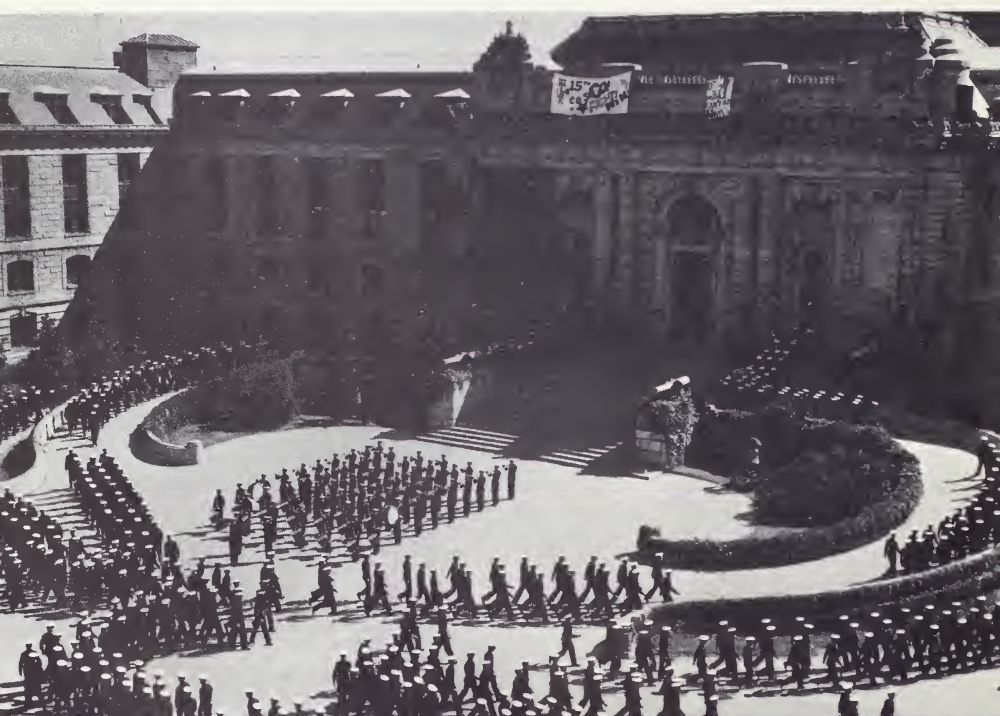
THE BRIGADE OF MIDSHIPMEN

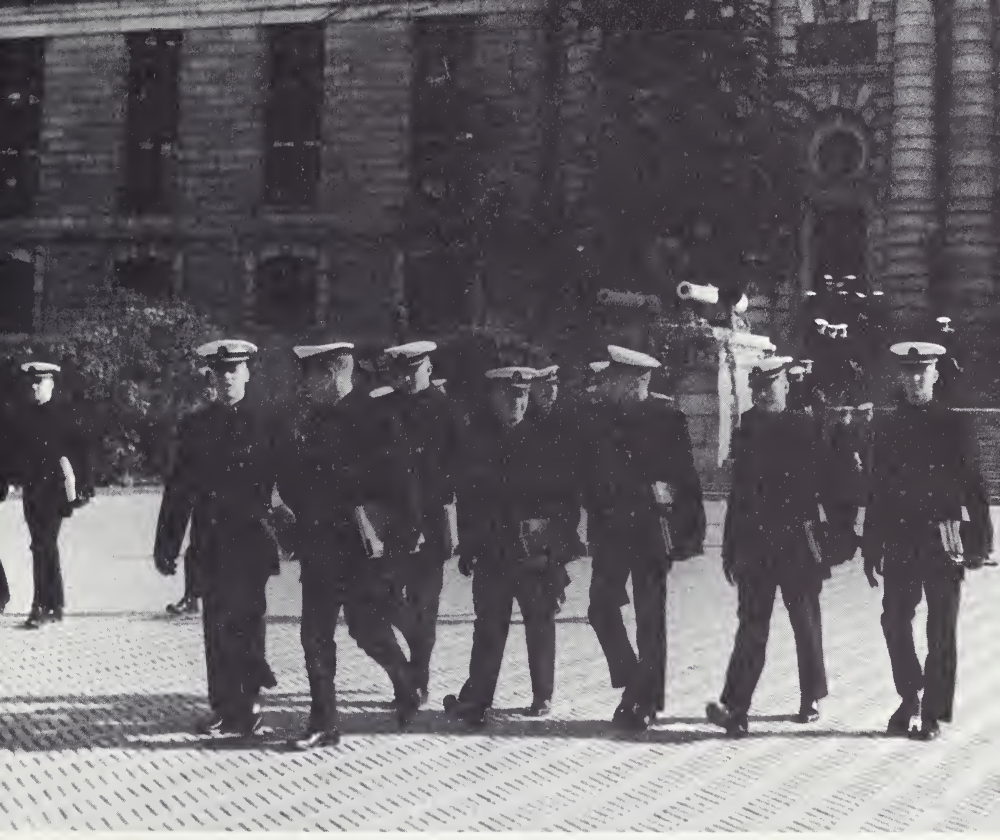
The Brigade of Midshipmen numbers about 3,800. It is divided into two regiments, each regiment into three battalions, and each battalion into four companies. The 24 companies are the basic administrative units. Each of the subdivisions of the brigade has its own appropriate midshipman officers, headed by the Brigade Commander. Midshipmen stand watch, as aboard ship, and exercise leadership in both the military and administrative activities of the Brigade as a vital part of their training.

The entering class is designated the Fourth Class, and its members are colloquially known as "plebes." Upon completion of their initial year they become Third Classmen, or "youngsters." The next year they become Second Classmen, and in their last year at the Naval Academy they are First Classmen. Each company is made up of members of all four classes in proportion to the size of the class. Each Fourth Classman is assigned to a First Classman for guidance.

Fourth Class indoctrination, a part of the plebe year program, is a system that both tests and trains new midshipmen. Under the direction of the First Class, the plebe participates in the transition from civilian to military life through rigorous training aimed at developing more mature judgment, a sense of responsibility, a desire for personal competence, and an understanding of obedience to commands as fundamental to the proper issuing of commands. Through this discipline, emphasizing honor, courage, and loyalty, the plebe gains a knowledge of, and pride in, the naval profession.

Tecumseh Court, Bancroft Hall.





THE MIDSHIPMAN'S ROUTINE

The life of a midshipman is an active one. He follows a well-planned routine from the time he rises in the morning until he goes to bed at night. It is the strict discipline of this routine which distinguishes the Naval Academy from most other colleges.

A midshipman's day begins at 6:15 a.m. He rises and prepares himself for breakfast formation, 30 minutes later. After breakfast he begins a day of study, recitations, drills, and laboratory work. When the academic work is completed at 3 or 4 p.m., he will usually participate in sports or extracurricular activities until evening meal formation at 6:30 p.m. After the evening meal and a brief period of relaxation, he returns to his studies until 10:15 p.m. Five minutes later, the mishipman has "turned in" for the night.

At noon on Saturday the Brigade completes the academic work for the week. Saturday afternoon will find the midshipmen enjoying "liberty" in Annapolis or attending the many intercollegiate athletic contests or participating in them. On Saturday night a dance, or "hop," is usually planned by one of the three upper classes. Motion pictures are shown for all midshipmen on Saturday night, and on

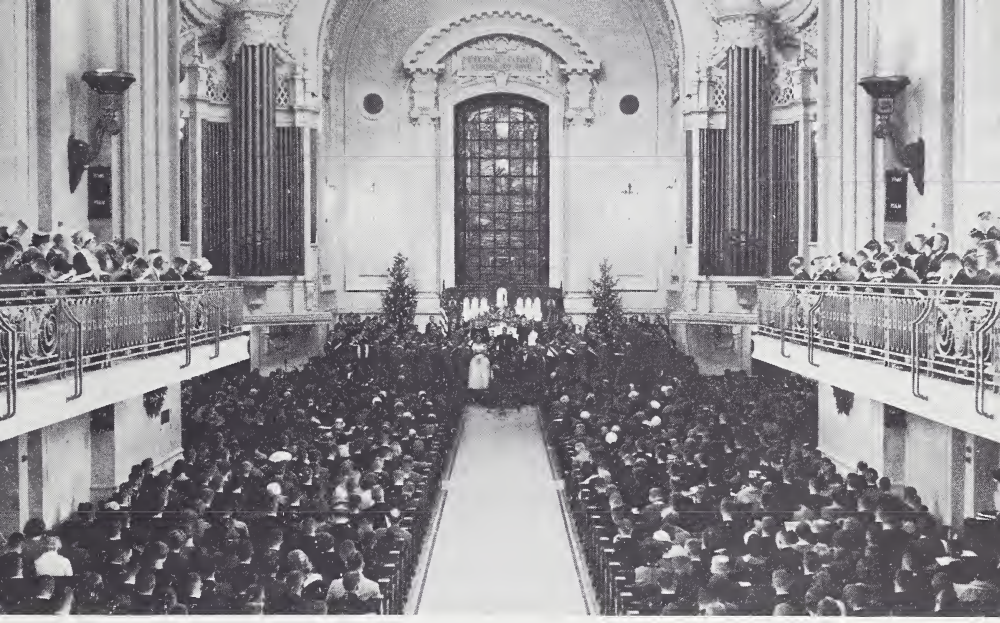
Sunday afternoon the three upper classes may escort guests to these movies.

On Sunday morning the midshipmen attend services at the Naval Academy Chapel or at the church of their choosing in the city of Annapolis.

After the First Class has graduated in June, midshipmen of the three other classes embark on cruise. The summer program gives the midshipman an opportunity to apply the knowledge and techniques he has acquired at the Naval Academy to duties in engineering, gunnery, navigation, communications, aviation, and tactics. He learns at first-hand the duties of seamen and petty officers as well as those of junior officers. He gains increased knowledge and a wider understanding of the Navy. In visits to foreign ports he enjoys seeing the land and meeting the people of America's friends and allies. At the end of cruise, the midshipman receives 30 days leave before beginning the new academic year.

Meanwhile the members of the new Fourth Class have spent the summer at the Naval Academy. Their program of indoctrination has prepared them for taking their place in the Brigade when the entire body of midshipmen returns to Annapolis in September.

Ring Dance Ceremony.



In the chapel, just before Christmas leave—the annual performance of Handel's *Messiah*.

LEAVE AND PRIVILEGES

The amount of personal freedom and privilege varies directly with the seniority of the midshipman and the degree of his authority and responsibility. A First Classman (Senior) not only will have more responsibility in the administration of the Brigade but also will have more privileges.

During his first year, the plebe is busy becoming familiar with navy life and learning its customs and traditions. He is expected to participate in intramural sports and become active in as many extracurricular activities as his studies will allow.

There are several regular leave periods for all classes during the academic year. These are Christmas leave, a period of about 2 weeks; end-of-term leave, a 3-day weekend break at the end of the first term in January; spring leave, a period of 3 days usually in late March; and the month-long summer leave of 30 days at the completion of the summer training program.

The regulations governing liberty, a term applied to recreational freedom to differentiate it from leave, which is an authorized leave of absence away from the Naval Academy, are set forth in detail in the Academy Regulations. In general, the liberty privileges for each class are as follows:

First Classmen have privilege of liberty in the Yard and in Annapolis every day, unless duties interfere. They are also privileged to have three weekend liberties each term.

The Superintendent's Academic Council.

Second Classmen have privilege of liberty in Annapolis on Wednesdays, Saturdays, and Sundays, and Yard liberty during the rest of the week at prescribed times. Second Classmen may select one weekend liberty each term.

Third Classmen have privilege of town liberty Saturdays and Sundays, and Yard liberty on Wednesdays at prescribed times.

Fourth Classmen have privilege of town and Yard liberty on Saturday afternoons, with dining-out privileges on Saturday and/or Sunday with relatives, or close friends. Fourth Classmen are not permitted to escort young ladies or attend dances their first year.

ACADEMIC ORGANIZATION

The Superintendent, a naval flag officer with wide fleet experience, directs the work of the Naval Academy under the immediate administrative control of the Chief of Naval Personnel. He is assisted by the Commandant of Midshipmen, who is charged with the direct administration of the Brigade of Midshipmen; by the Academic Aide, who supervises the induction, examination, academic instruction, and graduation of midshipmen; and by the Directors of the three major academic divisions, Naval Science, Science and Engineering, and Social Sciences and Humanities. The Superintendent, the Commandant, and the three Directors constitute the Academic Board of the Naval Academy.

The midshipman's military life and his program of physical education and intramural athletics are carried on under the Commandant of Midshipmen by the Executive Department and the Physical Education Department.

FACULTY

The Naval Academy faculty is composed of naval officer instructors and civilian professors in approximately equal proportion. Through exchange programs, there are also representatives of the other armed forces and of other colleges and universities on the faculty. A policy of assigning the best qualified instructor for the specific course determines the distribution of the officer and civilian faculty among the academic departments. For example, the Naval Science departments are staffed by officers, whereas the Social Sciences and Humanities departments have a preponderantly civilian faculty. In 1962 the teaching faculty, exclusive of administrative officials and those in nonacademic pursuits, numbered 272 officers and 223 civilians.

Members of the Naval Academy faculty participate in local and national meetings of educational and professional societies. As advisers and coaches, they work closely with the midshipmen in their extracur-

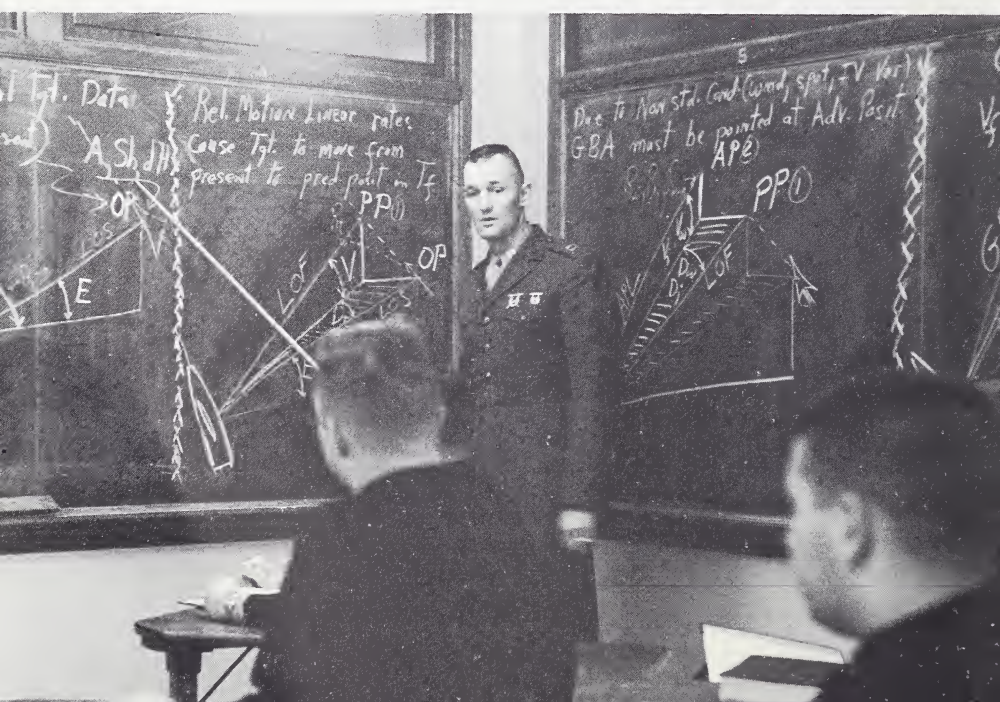
ricular activities. As scholars, they contribute to the literature of their specialties, prepare texts for midshipman instruction, and conduct research projects in this country and abroad.

SCHEDULE OF INSTRUCTION

The calendar year for each Naval Academy class is divided into three terms: summer term, first term, and second term. The academic year consists of the first and second terms, each term generally consisting of 17 weeks of instruction and one week of examinations. The normal academic routine provides for 5½ days of recitations, lectures, laboratory periods, and drills each week. The academic day is divided into six 50-minute periods. Monday through Friday, and four periods on Saturday. During the seventh period, the Brigade participates in military drill on Monday and a dress parade on Wednesday, during the fall and spring. Certain elective courses are taught the seventh period on Tuesdays, Thursdays, and Fridays. A 2½-hour evening study period is provided every evening except Saturday.

The instructional unit is a *section* of about 15 midshipmen. These small sections give each midshipman an opportunity to take an active part in classroom discussion. The high ratio of instructors to students makes it possible usually to assign a maximum of three or four sections to an instructor. As a consequence, considerable individual attention is characteristic of education at the Naval Academy.

Gunnery chalk-talk.



At graduation—tossing away their midshipmen caps.

THE ACADEMIC PROGRAM

The four-year program of the Naval Academy is undergraduate in scope and leads to the bachelor of science degree. The basic curriculum consists of 160 semester hours during the 4 academic years, exclusive of summer terms. About one-half of the instruction time is devoted to physical and engineering sciences, one-quarter to the social sciences and humanities, and one-quarter to naval science. The curriculum stresses basic and enduring principles to provide a background for effective leadership.

As a supplement to the basic curriculum, the Naval Academy offers a broad program of elective courses and provision for validation of college-level work successfully completed prior to admission. Qualified midshipmen may undertake advanced undergraduate courses in several major fields of concentration. The overall program assures all midshipmen of the educational benefits of the basic curriculum and at the same time provides the opportunity for fuller development of individual talents.

The awarding of the bachelor of science degree to graduates of the Naval Academy is authorized by the act of Congress approved 25 May 1933, as amended by the act of Congress approved 8 July 1937. The degree is accredited by the Middle States Association of Colleges and Secondary Schools.

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Elective courses enrich the program.

THE ELECTIVES PROGRAM

Eligible midshipmen of the three upper classes, and eligible members of the Fourth Class during the second term, are authorized to enroll in elective courses in addition to the courses in the basic curriculum, each midshipman being permitted to enroll in one or more such electives a term. To assist in the planning of a profitable program, a faculty adviser from the appropriate academic department is assigned each midshipman carrying an elective.

MAJOR AREAS OF STUDY

Midshipmen completing appropriate elective studies in an area of concentration may gain sufficient credits in addition to those in the basic curriculum to meet collegiate requirements for a major in that area. The number of semester hours of additional courses required for this purpose vary from 15 to 23 semester hours. Major programs may be undertaken in mathematics, marine engineering, aeronautical engineering, engineering, physics, social science, foreign language, and literature.

THE ADVANCED PLACEMENT PROGRAM

Midshipmen of the Fourth Class are allowed to participate in the Advanced Placement Program by validating courses completed prior to entrance which are substantially the same as those in the basic curriculum. Validation is granted on the basis of examination administered by the department concerned and review of previous scholastic high school and college records. *Candidates are encouraged to submit College Entrance Examination Board Advanced Placement test results.*

Midshipmen normally are enrolled in the next sequential course in the department in which they validate. They are expected to fill the vacancy with an elective course during a later year. Each validating midshipman is assigned a faculty adviser to assure that he has the prerequisite courses to undertake the substitute advanced courses and to assist in planning a profitable pattern of elective courses in the future.

Individual research is encouraged.

FOURTH CLASS YEAR

First Term	*Semester hours*
Analytic Geometry and Calculus	5
Chemistry	4
Engineering Drawing and Descriptive Geometry	3
Composition and Literature	3
Foreign Language	3
Physical Education	1
Executive	1
	20

Second Term	*Semester hours*
Analytic Geometry and Calculus	5
Chemistry	4
Statics	2
Composition and Literature	3
Foreign Language	3
Shipboard Orientation and Fleet Tactics	¾
Physical Education	1
Executive	1
	19¾

THIRD CLASS YEAR

Calculus [1]	5
Physics	5
Strength of Materials	3
Modern European History	3
Foreign Language	2½
Physical Education	¾
Executive	1
	20¼

Mechanics	5
Physics	5
Engineering Materials	3
U.S. Foreign Policy and Geography	3
Foreign Language	2½
Seapower	¼
Physical Education	¼
Executive	1
	20

[1] Includes 1½ semester hours of probability and statistics.

SECOND CLASS YEAR

First Term	*Semester hours*
Differential Equations [2]	3½
Electrical Science I	3¾
Basic Thermodynamics	4
United States Government	2
Piloting and Navigation	3½
Weapons Components	2¼
Physical Education	½
Executive	1
	20½

Second Term	*Semester hours*
Electrical Science II	4
Basic Fluid Mechanics	4
Economics and Speech	2¾
Leadership	2½
Navigation	3
Gunfire Control Systems	2¼
Physical Education	½
Executive	1
	20

FIRST CLASS YEAR

Electrical Science III	3
Applied Fluid Mechanics	3
Naval History	3½
Leadership	2½
Naval Operations	3¾
Underwater Systems and Digital Computers	2½
Naval Hygiene	¾
Physical Education	¼
Executive	1
	20¼

Electrical Science IV	3
Applied Thermodynamics	3
Advanced Composition and Literature	3¾
Naval Operations	4½
Meteorology	1
Missile Systems and Ballistic Missile Trajectories	2½
Physical Education	½
Executive	1
	19¼

[2] Includes ½ semester hour of spherical trigonometry.

NOTE: The course descriptions on the following pages were, with few exceptions, offered in the academic year 1961–62. They are included here primarily to indicate the breadth of course offerings available to eligible midshipmen.

Working with subcritical nuclear reactor.

Science and Engineering

Director: Captain John M. Reigart, U.S. Navy

This Division consists of the Mathematics Department, Science Department, and Engineering Department. The academic subjects required within the basic curriculum constitute approximately half of this total curriculum, and are similar in content and treatment to comparable courses at representative engineering colleges and universities. They are designed to implant the basic academic disciplines which will stimulate the midshipman's intellectual interest and appreciation for analytical methods, develop his habits of independent and logical thought, and give him the fundamental scientific competence required in his professional naval studies. Additional elective courses are offered to better prepare the student for specialized professional training and for postgraduate education.

ENGINEERING DEPARTMENT

Head of Department: Captain James V. Rowney, U.S. Navy
Executive Officer: Commander Norman F. Campbell, U.S. Navy
Senior Professor: Robert M. Johnston

The courses in the Engineering Department offer an engineering background based on fundamental theories and their naval applications.

The emphasis is on basic principles that may be applied to the complex and ever-increasing technical problems associated with the naval establishment.

Description of Courses

FOURTH YEAR CLASS

Summer Term

Practical Marine Engineering and Shop Practices. Introduction to marine and mechanical engineering, through sectioned machinery of typical modern naval installations, and scale models of naval machinery and machinery spaces of modern naval vessels. Demonstrations in patternmaking, foundry practice, machine shop practice, blacksmithing, coppersmithing, and gas and electric welding. Familiarization with various types of naval machinery and the basic steam cycle.

First Term

Engineering Drawing. Instruction in the use of drawing instruments and mechanical drafting procedures. Applications of orthographic, oblique, and isometric projection to engineering drawings. Freehand sketching from models and working drawings from sketches. Producing simple detailed working drawings from dimensioned assemblies, and making assemblies from completed working drawings. Exercises in blueprint reading. *Two and one-half semester hours.*

Second Term

Descriptive Geometry, Statics. Descriptive geometry, including solution of space problems involving points, lines and planes, parallelism, perpendicularity or angularity of lines and planes and relationships of these to curved surfaces. Treatment of coplanar force systems, moments, couples; equilibrium, free-body diagrams, structures; centroids, moments of inertia of areas, transfer of axes. *Two and one-half semester hours.*

THIRD CLASS YEAR

Summer Cruise

During his first cruise, the Third Classman is introduced to the organization of a combatant vessel's Engineering Department and is informed of the kind, purpose, and function of naval main propulsion and auxiliary units.

First Term

Strength of Materials. An introduction to the mechanics of engineering materials with emphasis on both their elastic and inelastic behaviors. Classroom work is concerned with axial stress and strains, torsion, combined stresses, Mohr's circle, thermal stresses, shear and

bending-moment diagrams, the flexure formula, the equation of the elastic curve, the beam deflections. *Three semester hours.*

Second Term

Engineering Materials. A general study of engineering materials—ferrous and non-ferrous metals, inorganic nonmetallic materials and organic materials. *Three semester hours.*

SECOND CLASS YEAR

First Term

Basic Thermodynamics. A first course in thermodynamics emphasizing the classical approaches to and developments from the First and Second Laws, including Clausius inequality, and the Nernst development of the Third Law. The course further includes consequences of the Second Law, available and unavailable energy of thermodynamic systems, properties of gases and vapors, analysis of processes and cycles involving gases and vapors and combustion processes and products, and transfer. *Four semester hours.*

Second Term

Basic Fluid Mechanics. The course covers fluid properties; fluid statics; basic flow concepts; basic equations including conservation of mass, momentum, and energy and the equation of state; dynamic similitude including Reynolds, Mach, and Froude's numbers; viscous effects including the boundary layer, turbulent flow, head loss, drag; frictionless compressible flow; two dimensional ideal fluid flow. *Four semester hours.*

FIRST CLASS YEAR

Summer Cruise

During his second cruise, the First Class midshipman becomes familiar with the organization, facilities, and functions of the Engineering Department of a typical combatant vessel. He learns the duties of a junior officer by standing watches throughout the Engineering Department and by exercising the responsibilities of Engineering Division Officer through the administration and instruction of midshipmen.

First Term

Applied Fluid Mechanics. The objective of the course is to demonstrate the application of the basic laws of fluid mechanics and problem solving techniques through selected applications. The course covers measuring of fluid flow; momentum analysis of pumps and turbines; closed conduit flow; subsonic aerodynamics; and hydro-mechanics. *Three semester hours.*

In the testing lab.

Second Term

Applied Thermodynamics. Application of principles of thermodynamics to internal combustion engines, gas and steam turbines, compressors and expanders, nozzles and diffusers, and turbo machinery. The course stresses the practical aspects of thermal energy conversion. *Three semester hours.*

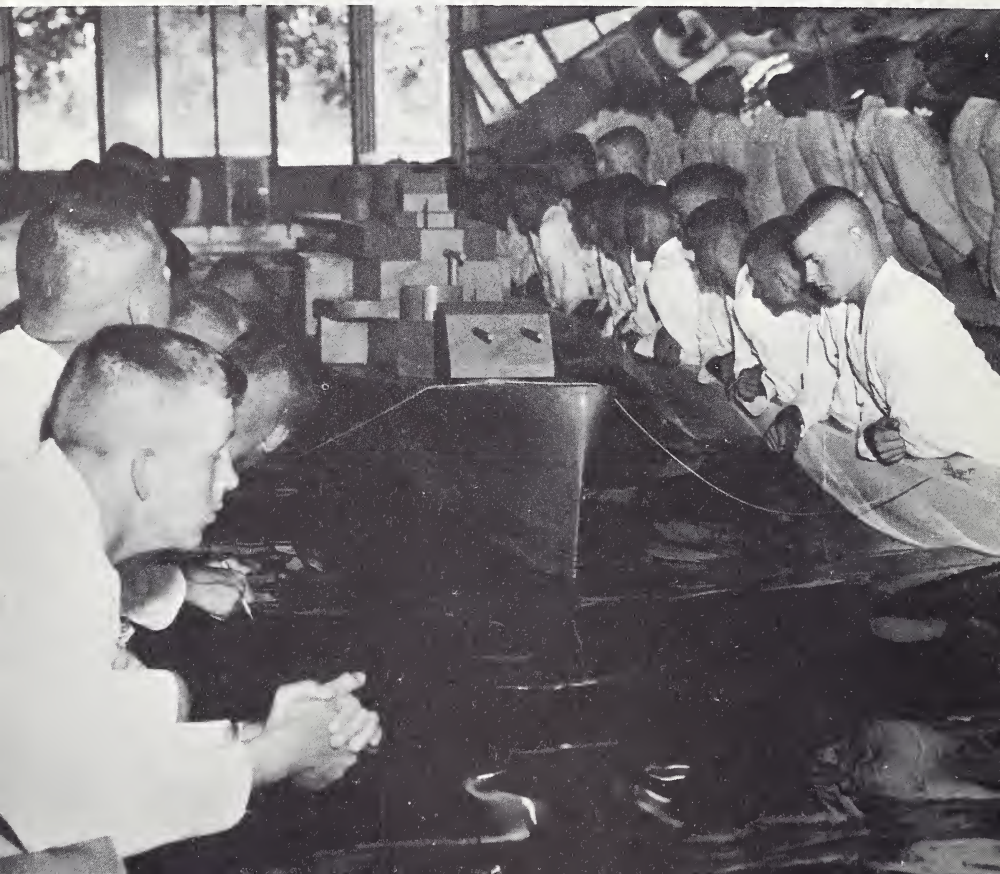
ELECTIVE COURSES

Kinematics. A study of displacements, velocities and accelerations of machine elements. Topics include Centros and Kennedy's Theorem; accelerations, Coriolis' Law and Glein's Construction with typical applications such as steering mechanisms, Oldham's Coupling and Hooke's Joint; development of plate and cylindrical cam profiles, follower types and displacements; rolling contact through friction gearing of ellipses and hyperboles; cycloidal and involute gear teeth and modifications; gear trains, rack and pinion, worm and wheel, and special devices such as the differential screw, the swash plate and the Geneva wheel. *Three semester hours.*

Intermediate Strength of Materials. Topical coverage includes two-material axially loaded members, welded and riveted joints, shear flow, shear center, unsymmetrical bending, statically indeterminate beams, deflection of beams, column formulae and stress and strain at a point. Topics will be treated from both an elastic and an inelastic viewpoint. *Three semester hours.*

Physical Metallurgy. A study of the principles of physical metallurgy including the of analysis perfect and imperfect crystalline structures, the concept of equilibrium in the solid state, the study of processes on the solid state, the theory of elasticity and plasticity, and the application of these principles to certain important ferrous and non-ferrous alloys. Laboratory work includes heat treatment, materials testing, and metallography. *Three semester hours.*

Systems Engineering. Relationship between the physical system and the differential equation which expresses its behavior. Topical coverage includes first and second order systems, transfer functions for both open and closed loop systems, and frequency response methods. Emphasis is upon mechanical devices. Hydraulic and electrical systems are included to stress analogous nature of all dynamic systems. *Three semester hours.*



Internal Combustion Engines. A basic thermodynamic analysis of internal combustion engines that includes studies of theoretical and actual engine cycles, airflow, fuels, air-fuel mixtures, and combustion processes. The principles of operation and construction of various types of internal combustion engines such as reciprocating, gas turbines, turbojet, ramjet, and rocket engines. Typical performance characteristics and limitations of actual engines are covered in the classroom and the laboratory. *Three semester hours.*

Naval Architecture—Hydrostatics. Hull form types; ship geometry, nomenclature, and hydromechanic parameters; form coefficients; hull form delineation; fairing and lofting practices. Form calculations; methods of determining areas, volumes, moments. Computations for displacement, center of buoyancy, center of gravity, and wetted surface. Preparation of hydrostatic curves; floodable length curves; watertight subdivision. *Three semester hours.*

Naval Architecture—Hydrodynamics. A basic study of ship's hydrodynamics with particular emphasis upon flow phenomena and surface resistance, including the concepts and problems associated with submerged control surfaces, hydrofoils, and propeller theory. Laboratory work includes exercises and calculations on towing tank calibration, model resistance, Taylor's Standard Series, determination of Shoenheer Line and effective horsepower, controlled-wave resistance testing, and hydrofoil model computations. *Three semester hours.*

Aerodynamics I. An introductory study of the aerodynamics of powered flight; the mechanics of flight, pressure distribution and lift, boundary-layer effects, compressibility in subsonic flow, shock wave analysis and wave combinations. Laboratory work includes exercises and calculations such as wind tunnel calibration, pressure distribution on an airfoil, drag on characteristic shapes, plan-form influence, and wake momentum survey. *Three semester hours.*

Aerodynamics II. A continuation of Aerodynamics I including thin airfoil theory, sweepback and transonic effects, propeller analysis, airplane performance, maneuvering flight, and elements of stability. Laboratory work includes exercises and calculations on section characteristics, drag buildup, and static stability; together with moving pictures and lectures on compressible subsonic, transonic, and supersonic effects; shock waves, drag rise, and area rules. *Three semester hours.*

Mathematics is the language of science.

MATHEMATICS DEPARTMENT

Head of Department: Captain Nathan R. Lincoln, Jr., U.S. Navy
Executive Officer: Commander Herman W. Roberson, USNR
Senior Professor: Livingston H. Chambers

This department develops in the midshipmen the fundamental skills of trigonometry, analytical geometry, calculus, mechanics, differential equations, and selected modern topics, with their application to analysis of mechanical, electrical, and fluid phenomena which are basic to the solution of naval technical problems. Advanced courses in calculus and mechanics are established for superior students.

Description of Courses

FOURTH CLASS YEAR

First Term

Analytic Geometry and Calculus. College algebra: inequalities, complex numbers and theory of equations. Analytic geometry and calculus: concept of function; graphs of functions; limits and continuity; the derivative of a function; differentiation of algebraic, trigonometric and inverse trigonometric functions; applications of the derivative to velocity, acceleration, maxima, minima and related rates. The intergral concept; the mean-value theorem; applications of the definite integral to area. Topics from analytic geometry including the straight line, conic sections, parametric representation; translation and rotation of axes are incorporated in an orderly development of the calculus. *Five semester hours.*

Second Term

Analytic Geometry and Calculus. Analytic Geometry and Calculus: Differentiation of logarithmic and exponential functions; techniques of integration; applications of the definite integral to arc length, volumes, surface area, moments of mass distributions, centroids; polar representation; vectors; vector algebra; differentiation of vector functions; vector treatment of motion on a curve. *Five semester hours.*

THIRD CLASS YEAR

First Term

Calculus. Mean value theorem and indeterminate forms, improper integrals, Newton's method; infinite series, including MacLaurin's and Taylor's series for expansion of functions; partial differentiation; multiple integrals and applications to area, volume, centroids, moments of inertia, etc.; separable differential equations of first order, linear differential equations with constant coefficients; applications to physical sciences.

Probability and Statistics. Probability; testing of hypothesis; frequency distributions, moments; probability distributions. *Five semester hours.*

Second Term

Mechanics. Vector algebra including scalar and cross products; forces, couples and moments; statics of a particle and a rigid body; vector calculus; kinematics of a particle and a rigid body; dynamics of a particle and a rigid body; work and energy principle; impulse and momentum principle. *Five semester hours.*

SECOND CLASS YEAR

First Term

Differential Equations. Fundamental concepts; first order differential equations; linear differential equations; simultaneous differential equations; partial differential equations; Fourier series: applications. *Three semester hours.*

Spherical Trigonometry. Geometry of the sphere; derivation of fundamental formulas; solution of right spherical triangles; solution of oblique spherical triangles; application of spherical trigonometry to the terrestrial and celestial spheres. *One-half semester hour.*

ELECTIVE COURSES

Fundamentals of Mathematics. Logic, the number system, logic of algebra, mathematical induction, cardinal numbers, groups. *Three semester hours.*

Matrix Theory. Algebra of matrices, determinants and systems of linear equations, linear independence, vector spaces, normal forms of matrices, characteristic equations. *Three semester hours.*

Modern Algebra. The real number system, groups, integral domains, rings, fields, Boolean algebra, lattices. *Three semester hours.*

Probability and Statistics. Frequency distributions, mean and standard deviations: probability distributions; the binomial, the Poisson and the normal; sampling theory; tests of significance; analysis of pairs of measurements. *Three semester hours.*

Numerical Analysis. Interpolation; numerical differentiation and integration; summation of series; numerical solution of algebraic and transcendental equations; numerical solution of systems of linear algebraic equations; numerical solution of differential equations. *Three semester hours.*

Probability and Statistics. Sampling theory; analysis of pairs of measurements; theoretical frequency functions for coorelation and regression; the chi-square distribution; small sample theory (student's-t and F distribution); general principles for testing hypotheses and for estimation; non-parametric methods. *Three semester hours.*

Mathematics for Engineers and Physicists. Matrix theory; vector analysis; partial derivatives; Fourier series; complex variables; Laplace transforms. *Three semester hours.*

Vector Analysis. The geometry and algebra of vectors; vector calculus and the elements of the theory of vector fields; line and surface integrals; Stoke's and Gauss' theorems and their consequences; applications to geometry and dynamics used throughout to illustrate the methods developed. *Three semester hours.*

Advanced Calculus I. The number system; sequences and series; functions of one variable; functions of several variables; vectors *Three semester hours.*

Introduction of Complex Variable. Complex variables; harmonic functions; contour integrals and residues; conformal mapping; applications. *Three semester hours.*

Advanced Calculus II. The definite integral; improper integrals; line integrals; multiple integrals; uniform convergence; Fourier series and integrals. *Three semester hours.*

SCIENCE DEPARTMENT

Head of Department: Captain Frank A. Andrews, U.S. Navy
Executive Officer: Commander Robert A. Swensen, U.S. Navy
Senior Professor: Edward J. Cook

The Science Department presents the fundamental concepts of the physical sciences, their application to present and future technology, and use of analytical methods in the solution of appropriate problems.

Description of Courses

FOURTH CLASS YEAR

First and Second Terms

Chemistry. Fundamentals of chemical theory with a study of the properties of metals and nonmetals. Among specific topics studied in *chemical theory* are the laws of chemical change, atomic structure and the periodic table, kinetic-molecular theory and the gas laws, solutions, chemical equilibrium, ionization, electrochemistry, radioactivity,

nuclear reactions and nuclear energy from fission and fusion reactions. *Metals* studied include the alkali and alkaline earth metals, aluminum, and iron. *Nonmetals* studied are limited to oxygen, hydrogen halogens, nitrogen, and sulfur families, carbon, and simple carbon compounds. *Naval applications* include batteries, corrosion, water treatment, explosives, chemical warfare, the atomic bomb, the hydrogen bomb, and nuclear power plants for propulsion. Laboratory work includes both descriptive and quantitative experiments, and a brief introduction to the principles of semimicro qualitative analysis. *Eight semester hours.*

THIRD CLASS YEAR

First and Second Terms

Physics. Fundamental physical quantities, velocity and acceleration, Newton's laws of motion, energy and power, conservative forces, conservative fields, impulse and momentum, collisions, kinetic theory, temperature, heat, flow of electricity, magnetic fields, rotational motion, conservation of angular momentum, harmonic motion, waves, interference of waves, standing waves, diffraction, Doppler, reflection, refraction, sound, electromagnetic induction, electromagnetic waves, polarization, relativity, Michelson-Morley experiment, mass and energy, elementary particles, particles and waves, atomic structure, elementary quantum theory, nuclear forces, ranges, absorption, detection, radioactivity, nuclear reactions. *Ten semester hours.*

SECOND CLASS YEAR

First Term

Electrical Science. Fundamental concepts of electric and magnetic fields. Laws of the electric circuit and introduction to network analysis. Principles of electrical measurements. R, L, C, and M as fundamental circuit parameters, transients; alternating currents and voltages; phasor representation and complex algebra; single phase transformers. *Three and three-fourths semester hours.*

Second Term

Electrical Science. Theory and principles of electronics. Fundamentals of electron emission and ballistics in vacuum and gas-filled tubes; tuned circuits and filters; transients and wave-shaping circuits; voltage stabilizers; transistors; radio and audio frequency amplifiers; cathode ray tubes and oscillographs. *Four semester hours.*

FIRST CLASS YEAR

First Term

Electrical Science. Electronic systems, oscillators, modulation,

transmitters, transmission lines, receivers, antennas and wave propagation, data transducers. *Three semester hours.*

Second Term

Electrical Science. Polyphase circuits, magnetic circuits, electromechanical energy conversion, equivalent circuits, control systems. *Three semester hours.*

ELECTIVE COURSES

Advanced Inorganic Chemistry. Fundamental concepts of inorganic chemistry including the following: atomic structure and the classification of the elements; atomic binding forces; complex ions and coordination compounds; reactions in aqueous and nonaqueous media; radioactivity and nuclear transformations. *Three semester hours.*

Organic Chemistry. A study of the principles of organic chemistry, including the fundamental concepts of energy relationships, resonance, dipole moments, ionic character in covalent bonds and relative electronegativities of atoms and radicals, and the new areas of organic chemistry including high energy fuels, synthetic motor fuels, explosives, synthetic rubber and high polymers, detergents and "wonder" drugs. *Three lectures and two three-hour laboratories.*

Atomic and Nuclear Physics. The first semester is devoted principally to atomic physics, including atomic structure, spectra, X-rays, photoelectric effect, fundamental particles, special relativity, and an introduction to quantum phenomena. The second semester is nuclear physics, including radioactivity, nuclear structure and forces, nuclear reactions, fission, fusion, and interactions of radiation with matter. *Six semester hours.*

Principles of Underwater Acoustics. This course is approximately one-half basic principles of acoustics which are necessary to a study of underwater sound, and one-half application of these principles to underwater sound problems. Topics include oscillations, plane and spherical waves, radiation patterns, reflection coefficient, attenuation, velocity, ray theory, wave theory, scattering, reverberation, fluctuations, echo ranging and noise. *Three semester hours.*

Principles of Optics. Geometrical and physical optics. Topics studied are optical instruments, aberrations and their correction, interference, diffraction, polarization, and scattering. The electromagnetic theory of radiation is introduced, and the principles of optics are applied to radar, infrared, ultraviolet, X-rays, and other types of radiation. *Three semester hours.*

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Advanced Undergraduate Laboratory. Physics. A laboratory course on the junior-senior level. Consideration is given to the statistical treatment of experimental data and the proper presentation of results. The experiments are drawn mostly from modern physics, acoustics, optics, and electricity. *Three semester hours. Two three-hour laboratory periods each week.*

Electric Circuit Analysis. A study of communication circuits, network theorems, modal and mesh equations, filters and transmission lines. *Three semester hours.*

Transient Analysis of Linear Systems. A study of electrical transients in linear networks using classical and Laplace transform methods. *Three semester hours.*

Neutron Physics. A study of the production and reactions of neutrons. Among the topics considered are the emission, moderation, diffusion, and absorption of neutrons. Measurements, such as those on neutron distribution, scattering, absorption, and reflection coefficients will make use of the subcritical assembly and associated equipment. *Three semester hours. Two lectures and one two-hour laboratory each week.*

Introduction to Quantum Mechanics. An introductory study of Quantum Mechanics with emphasis on the physical principles in volved. Topics to be covered are as follows: Basic postulates, solutions of the Schroedinger wave equation for special cases in one and three dimensions, perturbation theory, Pauli exclusion principle, relativistic wave equation and origin of electric spin. *Three semester hours.*

SPECIAL ELECTIVE COURSE

The following course is offered under the cognizance of the Director of Science and Engineering:

Science Research Project. A creative, scientific research project in the field of the student's interest, approved by the science research adviser in the cognizant department. The project may be undertaken only by those in the third year of participation in the Advanced Science and Mathematics Seminar. *Three semester hours.*

Social Sciences and Humanities

Director: Captain Lloyd V. Young, U.S. Navy

From its inception, the Navy has recognized that its officers must be able to express themselves effectively, have an appreciation of national and international interests that may become matters of professional naval concern, and prove capable of serving their country at home, on the high seas, and abroad. Toward the preparation of the midshipman to fulfill those aspects of his role as a naval officer, the Departments under the Director of Social Sciences and Humanities conduct courses in written and spoken language, both English and foreign, the appreciation of literature, the basic concepts of government and economics, and the history of the Western world with special attention to its diplomatic and naval aspects. The grouping of the humanistic studies at the Naval Academy permits careful integration of the program of studies, with particular attention to the midshipman's written and oral English throughout the four years.

Specially constituted option sequences in the social sciences or humanities are available to those midshipmen who validate other courses. These options are in literature, political science, history, economics, and language studies, which provide greater depth in a selected area of study, or the opportunity for individual midshipmen to major in a particular field of interest.

ENGLISH, HISTORY, AND GOVERNMENT DEPARTMENT

Head of Department: Captain John T. Straker, U.S. Navy
Executive Officer: Commander Jack C. Crandall, U.S. Navy
Senior Professor: William W. Jeffries

The English, History, and Government Department, in addition to developing ability to express ideas clearly in speech and writing, provides a factual knowledge of historical events and the functions of government, and an introduction to economics, international relations, geography, and masterpieces of literature. There are advanced sections in all courses except during First Class year.

Description of Courses

FOURTH CLASS YEAR

Summer Term

Naval History: Traditions and Leadership. Familiarization with the library and drill in the use of its facilities; selected reading; reading assignments in naval history and traditions, with supplemental lectures, and an examination.

First and Second Terms

Composition and Literature. Primary emphasis is on developing efficiency in reading and in oral and written communication. Reading and discussion of selections from major American writers (first term) and major British writers (second term), with frequent quizzes. Weekly themes based on the readings and exemplifying basic forms of exposition: Definition, classification, analysis, argument, criticism, comparison and contrast, etc. Individual conferences on composition in class. Practice in the use of the dictionary, social and naval correspondence, and public speaking. Library visits, with drill in research techniques. *Six semester hours.*

Composition and Literature, Advanced Course. This course is designed for midshipmen with exceptional aptitude for composition and literature. The general objectives are the same as those of the basic course except that there is more emphasis on critical writing. The major types of American and English literature are studied in the first and second terms respectively. These major types are represented by complete works of outstanding men of letters. *Six semester hours.*

THIRD CLASS YEAR

First Term

Modern European History. The objective of the course is to give the midshipmen a knowledge of the historical development and overseas impact of events in Europe since 1789. Lectures and library periods broaden the scope of the textbook. *Three semester hours.*

Second Term

United States Foreign Policy and Geography. The course objective is to teach the midshipmen the diplomatic history of the United States and the principal aspects of past and present U.S. foreign policies. The lessons in geography are designed to develop an appreciation of geographic forces in world affairs. *Three semester hours.*

SECOND CLASS YEAR

First Term

United States Government. The objectives of this course are: (1) to implant in the midshipmen an understanding of the basic concepts of American democracy; (2) to establish an understanding of the Constitution; (3) to familiarize the student with the structure and functions of his government and the forces and factors which influence its operation; and (4) to compare his government with other types of government. *Two semester hours.*

Second Term

Economics and Speech. Laws of economic behavior, American economic institutions, the role of government in the economy in peace and war, elements of personal finance. The portion of the course devoted to speech emphasizes speech composition and platform performance, aiming at improving the midshipmen's general proficiency in oral self-expression. *Two and three-quarters semester hours.*

Economics and Speech, Advanced Course. This course is designed for midshipmen who have demonstrated particular proficiency in the social sciences. The objectives are similar to those of the basic course, but the level of analysis is commensurate with the superior abilities of the students. Some emphasis is given to economic methodology and to the history of economic thought. *Two and three-quarters semester hours.*

FIRST CLASS YEAR

First Term

Naval History. The objective of this course is to provide the midshipmen with information basic to their profession concerning:

(1) the development of naval ships and weapons; (2) the evolution of naval tactics and amphibious doctrine; (3) the reasoning behind historic strategic decisions; (4) the influence of sea power upon history; and (5) the qualities of character and professional competence which have made great naval leaders. *Three and one-half semester hours.*

Second Term

Advanced Composition and Literature. The objective of this course is to develop the midshipman's intellectual maturity: (1) by exploring some of the problems of human existence; (2) by deepening his understanding of human personality; (3) by sharpening his perceptions of literary values through writings and discussion; and (4) by improving his powers of oral and written expression. Course work involves the reading and the discussing of at least five masterpieces selected by the instructor from world literature, past and present. The readings and the discussions in any one class section are related to a single thematic objective. *Three and three-quarters semester hours.*

First and Second Terms

Research Paper. The research paper project is designed to introduce the midshipmen to the scientific method of analyzing the materials of history, to familiarize them with research methods, and to require of them an extended piece of individual work in which they combine their knowledge of history and their skill in composition. The research paper project begins early in the first term and extends well into the second.

After-Dinner Speaking. Throughout First Class year, small dinners are given under the auspices of the English, History, and Government Department, with the primary objective of providing a setting for midshipmen to deliver after-dinner speeches under realistic circumstances. Guests of honor and faculty members are present. Each member of the First Class participates in at least two of these dinners.

The guest of honor speaks.

Modern American Literature. Readings from the major writers of American fiction, poetry, and the drama since 1920. Especial attention to representative works of such authors as Hemingway and Faulkner, Eliot and Frost, O'Neill and Williams. *Three semester hours.*

Modern British Literature. Readings from the major writers of British fiction, poetry, and the drama since 1920. Especial attention to representative works of such authors as Joyce, Huxley, and Orwell; Auden and Dylan Thomas; Shaw, Synge, and O'Casey. *Three semester hours.*

Readings in the Literature of Democracy. A study of selections of literary merit dealing with ideas basic to democratic government: books, tracts, essays, letters, documents, speeches, and public pronouncements. Literary qualities of the selections are emphasized. This course carries credit leading to a major in either Literature or Social Studies. *Three semester hours.*

Classical Literature. This course is designed to give the midshipmen an introduction to the important literature of classical Greece and Rome, such as the works of Homer, Sophocles, Virgil, and Ovid. Some emphasis is also placed on the mythology and religion of the age. *Three semester hours.*

United States History. A survey of the principal political, economic, and social ideas and institutions of the American people since 1789. Attention is also paid to geographical considerations, religious currents, progress in literature and the arts, and the development of foreign policies. Emphasis is placed upon achieving a broad picture of the foundations of current attitudes toward domestic problems and foreign affairs and upon the characteristics of the democracy which American military personnel are sworn to defend. *Three semester hours.*

History of Russia. A chronological introduction to the political, cultural, social history of Russia from the founding of the Moscow principality through its expansion into the present Soviet Union. The growth of national consciousness, drive, and objectives will be emphasized, together with the factors fostering the anomalous survival of the principle of autocracy from the 13th century Mongol invasion. *Three semester hours.*

History of Europe, 1500–1815, from Renaissance through Napoleon. A survey course in which the following major developments will be studied: the rise of Spain, England, and France as national states, the development of absolute monarchy, the era of oceanic exploration and

of overseas colonization, the rise of capitalism, the Protestant Revolt or Reformation, the Scientific Revolution, the development of constitutional government, the rise of Russia and Prussia, the French Revolution and Napoleon. Readings presenting differing points of view will be used as a basis of discussion. *Three semester hours.*

United States Economic History. A study of the American economy from colonial times to the present, with special emphasis on the interrelations between the ways Americans have made a living and their social and political attitudes, on America's role in the world economy, and on the rise of the large corporation. *Three semester hours.*

The World Since 1914. This course emphasizes the backgrounds and causes of World Wars I and II, the development of totalitarianism, the failure of collective security in the interwar period, the diplomacy of coordination during World War II, the United Nations, and significant trends in the Far East, Middle East, Africa, and Europe after World War II. *Three semester hours.*

Comparative Government and Comparative Economic Systems. A comparative study of the governments of England, France, Russia, China, and India, with full attention to civil rights and economic controls as well as the machinery of government. The approach is dynamic rather than static. The implications of the various philosophies of government in foreign relations are considered. *Three semester hours.*

GE College Bowl Team.

Communism: Theory and Practice. A study of the philosophy of Communism from the writings of Engels, Marx, Lenin, and Stalin; history of the Internationals; the role of the Comintern and the "international party"; relations of the Soviet Union with radical parties outside Russia, and with European Social Democratic parties; policies in the satellite nations; the security problem in the Western democracies. *Three semester hours.*

The Far Eastern Relations of the United States. A consideration of the development of the diplomatic, cultural, and economic relations of the United States and the Far East. Special emphasis is placed on developments since 1850, particularly upon the interaction of the foreign policies of the United States with those of the major Far Eastern powers as the latter were stimulated by imperialism, nationalism, industrialism, democracy, and Communism. *Three semester hours.*

Political Theory. The philosophic bases of the various forms of government, with emphasis on the roots of democracy; the political writings of Plato, Aristotle, St. Thomas Aquinas, Hobbes, Locke, Montesquieu, Hamilton, Jefferson, Madison, Hegel, Nietzsche, Pareto, Wilson; the great documents—Magna Carta, the Declaration of Independence, the U.S. Constitution, the Atlantic Charter, etc.; legal codes; the Common Law. *Three semester hours.*

Advanced Economics and Problems of Defense Mobilization. Intermediate level economic analysis, with emphasis on policy problems in war and cold war: production and manpower programing, allocating of materials, stockpiling, wage and price controls, rationing, wartime fiscal and monetary policies. *Three semester hours.*

Personal Finance and Investments. A study of the general principles of savings plans, periodic investment programs, investment companies, personal trusts, stock and bond portfolio management, mortgages, and property and income taxes. *Three semester hours.*

Introduction to Philosophy and Logic. A brief study of the problems and methods of philosophy and the solutions suggested by various philosophers. Included is a nontechnical introduction to the analysis of deductive and inductive reasoning, sound definition, and logical fallacies. *Three semester hours.*

History of Latin America. A survey designed to provide reasonable familiarity with the origins and growth of our southern neighbors. The complex threads of independence won by viceroyalties, fragmentation by nationalism, and the rise of national leaders will be

subordinated in emphasis to the development of the forces shaping Pan-Americanism. The significance for Latin America, the United States, and the world of the ideal of *La Patri Grande* will be explored. A reading knowledge of Spanish or Portuguese is desirable but not required. *Three semester hours.*

Elements of Law. Introduction to jurisprudence. The essentials of the law of crimes, contracts, torts, agency, real and personal property, domestic relations, testaments, negotiable instruments, and taxation, with a view of familiarizing the student with those branches of the law he is most likely to encounter in his role as a citizen and officer of the Armed Forces. *Three semester hours.*

Contemporary Problems and International Relations. This course deals with the present-day problems confronting United States diplomacy in Europe, the Far East, the Middle East, and Latin America. It provides extensive opportunity for the study of policy as well as appropriate diplomatic strategy to be applied as possible solutions to the problems. *Three semester hours.*

United States Military History and Policy. A survey of United States military history and policy from colonial times to the present. It provides extensive opportunity to analyze major land and pertinent sea campaigns, problems of logistics, the implementation of national policy by the military forces and the relationship between the United States military staffs and the civil government, the effect of air power on strategy, and concepts of nuclear warfare. *Three semester hours.*

Seminar in Literature I (*Representative Contemporary Novelists*). Intensive study of selected works of six modern novelists, Moravia, Camus, Silone, Faulkner, Greene and Malraux, as representatives of contemporary points of view on the political, social and ethical problems of the 20th century. Discussions, collateral readings, reports, individual reading projects. *Three semester hours.*

Seminar in Literature II (*Representative Contemporary Playwrights, Poets or Short Story Writers*). Intensive study of modern drama, poetry, or short fiction, American, British and continental, as representative of contemporary points of view on the political, social and ethical problems of the 20th century. (Only one literary type will be studied in any one year, as determined by the interest of the midshipmen enrolled.) Discussions, collateral readings, reports individual reading projects. *Three semester hours.*

Seminar in History. Directed individual investigation and group discussion in special fields of interest in European and United States

Coffee break—Naval Academy Foreign Affairs Conference.

Histories. This work will be accomplished by readings and lectures on the nature of historical research, the problems of causation and of interpreting evidence, and the major schools of historical interpretation. *Three semester hours.*

Seminar in Russian Military and Naval Doctrine. The evaluation of Russian strategic and tactical concepts, the interrelationship of armed services, the development of material, education and training, and illustrative campaigns. Emphasis will be placed upon outstanding Russian formulators and practitioners of military and naval doctrine. The influence of Stalin upon Soviet military doctrine and its differences with conventional concepts are emphasized. A reading knowledge of the Russian language is desirable but not required. *Three semester hours.*

Seminar in Philosophy of War. A survey of the ethical problems involved in war. It provides for the study of the causes and nature of war, an examination of limited and absolute war and the relation-

ship between military staffs and civil governments, and an analysis of the writings of the leading men on the subject. *Three semester hours.*

Seminar in Naval History. Designed to provide opportunity to pursue interest aroused in a phase of naval history. A midshipman, with the supervision of the instructor, will develop his own project of reading or research. The group will discuss oral or written reports submitted at such intervals as will keep discussion fruitful in exploring those problems or aspects of naval history which may be involved. *Three semester hours.*

Public Speaking. This course is designed to improve the midshipmen's general proficiency in oral self-expression. The course will emphasize speech composition and platform performance. Attention will be paid to debate techniques, conference procedures, briefings, and *ex tempore* speaking. *Three semester hours.*

Parliamentary Procedures and Group Discussion. A study of both formal and informal group speech activity and parliamentary practice based on *Robert's Rules of Order*. *Three semester hours.*

Major British Writers, 14th-18th Centuries. Intensive study of selected works of principal figures in the literature of England: Chaucer, Shakespeare, Milton, Pope, Johnson, and Wordsworth; their thought and art, their historical background, their significance as representatives of their times, and their contributions to the culture of the English-speaking nations. This course includes only works not previously studied in prerequisite or other elective courses. *Three semester hours.*

Major British and American Writers, 19th and 20th Centuries. Intensive study of selected works of principal figures in the literature of England and the United States in the 19th and 20th centuries: Emerson, Hawthorne, Melville, Dickens, Browning, Poe, Whitman, Joyce, and Eliot; their thought and art, their historical background, their significance as representatives of their times, and their contributions to the culture of the English-speaking nations. This course includes only works not previously studied in other elective courses or in the prerequisite courses. *Three semester hours.*

Seminar in Social Studies. An introduction to research in specific fields of the Social Studies. The work will be accomplished by readings, lectures, and seminar discussion on the nature and techniques of research, the problems of causation and of interpreting evidence, and the major schools of interpretation. Students may concentrate in history, political science or economics. *Three semester hours.*

The gift of tongues.

FOREIGN LANGUAGES DEPARTMENT

Head of Department: Captain Charles T. Cooper, III, U.S. Navy
Executive Officer: Commander Vincent J. Anania, U.S. Navy
Senior Professor: John D. Yarbro

This department aims to provide every midshipman with: (1) a working knowledge of one foreign language, with emphasis on conversation; and (2) a basic acquaintance with the areas, customs, and civilization of the people whose language is being studied. The languages offered are French, German, Italian, Russian, Portuguese, and Spanish. Each midshipman normally chooses the language he will study.

Description of Courses

FOURTH CLASS YEAR

First and Second Terms

Language. Brief elementary pronunciation course conducted using departmental pamphlets or suitable regular texts; essentials of grammar; conversation on everyday life and area material. Enriched courses are offered to qualified midshipmen. *Six semester hours.*

THIRD CLASS YEAR

First and Second Terms

Language. Brief review of grammar; development of speaking and writing ability based on readings of intermediate difficulty selected from stories, plays, contemporary writings, and naval phraseology. Enriched courses are offered to qualified midshipmen. *Five semester hours.*

ELECTIVE COURSES

French

Beginning French. Offered to Third, Second, and First Class midshipmen as a second language. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Intermediate French. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Advanced Written and Oral French. Aims to develop accuracy and ease in the active use of French. Provides ample practice in writing and speaking. Includes vocabulary building and systematic review of grammar. Two terms, but each term may be taken independently. *Three semester hours each term.*

Advanced French Readings and Conversation. Advanced conversation and discussions based on readings selected from cultural and other modern writings. Includes some composition. *Three semester hours each term.*

Language instructors.

Readings in French Literature. Plays, novels, poems and anthology selections by such famous authors as: Corneille, Racine, Molière, Marivaux, Voltaire, Rousseau, Hugo, Lamartine, Balzac, Flaubert, Baudelaire, Zola, Proust, Gide, Mauriac. Ample practice in conversation. Two terms, but each term may be taken independently. *Three semester hours each term.*

Contemporary French Literature. Selected works of such influential modern authors as Proust, Mauriac, Malraux, Romains, Gide, Camus. Ample practice in conversation. *Three semester hours.*

Contemporary France. Readings and discussions designed to provide knowledge and understanding of the French people and of French national life today. Ample practice in conversation. *Three semester hours.*

German

Beginning German. Offered to Third, Second, and First Class midshipmen as a second language. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Scientific German. A beginning course in reading and translation, intended for those who have not studied this language at the Naval Academy, and who desire only a reading knowledge of scientific German. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Intermediate German. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Advanced German. Selected readings, magazines and periodicals, to develop skill and facility in writing and fluency in oral discussion. Systematic drill to enable the midshipman to broaden his vocabulary range in all fields. *Three semester hours.*

German Literature of the Twentieth Century. Literary movements and selected authors: Gerhart Hauptmann, Thomas Mann, Hermann Hesse, Wolfgang Borchert, Franz Kafka, Elisabeth Langgasser, Ernest Wiechert, and others. *Three semester hours.*

German Naval Histories and Novels. This course is intended to develop skill in naval terminology and to broaden the knowledge of the midshipman in his special field. Basically World Wars I and II (each term may be taken independently). *Three semester hours each term.*

Goethe, Schiller and Lessing. Selected works from the three great writers of German literature. Their influence on the literature and history of the times will be emphasized. *Three semester hours each term.*

Language lab.

German Literature Since Goethe. An introduction to the German literary movements from the Liberal Age to the present. Representative works of the more important authors of each genre and period will be read and discussed. *Three semester hours each term.*

Italian

Beginning Italian. Offered to Third, Second, and First Class midshipmen as a second language. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Intermediate Italian. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Advanced Italian. The course offers practice in original oral composition and conversation. Selected reading, magazines and periodicals provide sources of drill materials. *Three semester hours.*

Italian Culture and Civilization. A survey of the major manifestations of Italian genius, from the Middle Ages to the present, in literature, art, philosophy, and science. (Two terms, but each term may be taken independently.) *Three semester hours each term.*

The Age of Petrarch and Boccaccio. This course presents the development of the lyric and the short-story with representative readings in each. *Three semester hours.*

Dante and His Times. The Divina Commedia is read and analyzed in the light of the literary, political and religious ideals of the Middle Ages. *Three semester hours.*

Portuguese

Beginning Portuguese. Offered to Third, Second, and First Class midshipmen as a second language. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Intermediate Portuguese. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Advanced Portuguese. Advanced study of the language with practical written and oral work leading to increased facility in the use of Portuguese. Selected readings and current periodicals will be used as source materials. *Three semester hours.*

Introduction to Portuguese Civilization and Literature. Portuguese geography, history, economy, and arts—general readings. Portuguese literature—selections from Gil Vicente, Camoes, Garrett, etc. Informal lectures. Discussion. *Three semester hours.*

Introduction to Brazilian Civilization and Literature. Brazilian geography, history, economy, and arts—general readings. Brazilian literature—selections from Gilbert Freyre, Verissimo, Benedetti, etc. Informal lectures and discussion. Consideration of contemporary problems in Portugal and Brazil and relations of these countries with the United States. Oral presentation on these and allied subjects. *Three semester hours.*

The Brazilian Short Story and Theatre. Selected readings in the short story and the theatre from contemporary Brazilian writers. Monteiro Lobato, Pereira de Almedia, Callado, etc. Informal lectures. Discussion. *Three semester hours.*

Contemporary Naval, Technical, and Nontechnical Portuguese. Selected readings on naval and technical subjects and readings in current nontechnical periodicals. Preparation for oral presentations and briefings covering situations in which a naval officer might find himself in Portuguese-speaking areas. *Three semester hours.*

Russian

Beginning Russian. Offered to Third, Second, and First Class midshipmen as a second language. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Intermediate Russian. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Advanced Russian. Development of accuracy and ease in the use of Russian through oral interpretive reading of narrative and dramatic

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literature, and through the use of transcriptions by contemporary Russian artists. *Three semester hours.*

The Soviet Press. Analysis of articles from the current Soviet press. *Fel'eton*, Party appeal, reports, news. Objective is to acquire a critical reading ability of Soviet periodicals. Discussions to be conducted in Russian. *Three semester hours.*

Scientific Russian. A reading course in current Soviet scientific literature. Material will be selected from current periodicals, textbooks and encyclopedias. Special attention will be devoted to the administrative framework of theoretical and applied research. Two terms, but each term may be taken independently. *Three semester hours each term.*

Russian History in Literary Works. Study of historical epochs through dramas and tales. Reports and discussions in Russian. *Three semester hours.*

The 19th Century Russian Novel. Readings from the works of Leo Tolstoy, Turgenev, and Dostoevsky. Reports and discussions in Russian. *Three semester hours.*

Anton Chekhov. Study of selected plays and short stories of Chekhov. Objective is to increase mastery of contemporary Russian vocabulary and to develop an understanding of Chekhov's world. *Three semester hours.*

Spanish

Beginning Spanish. Offered to Third, Second, and First Class midshipmen as a second language. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Intermediate Spanish. No credit granted unless both terms are satisfactorily completed. *Six semester hours.*

Advanced Spanish Composition and Conversation. For students who already have a basic knowledge of Spanish grammar and experience in spoken language. This course is intended to develop facility in writing and speaking correct and concise Spanish. Discussions, short speeches and oral and written reports in Spanish. *Three semester hours each term.*

Advanced Spanish Readings and Conversation. Advanced conversation and discussions based on readings selected from cultural and other

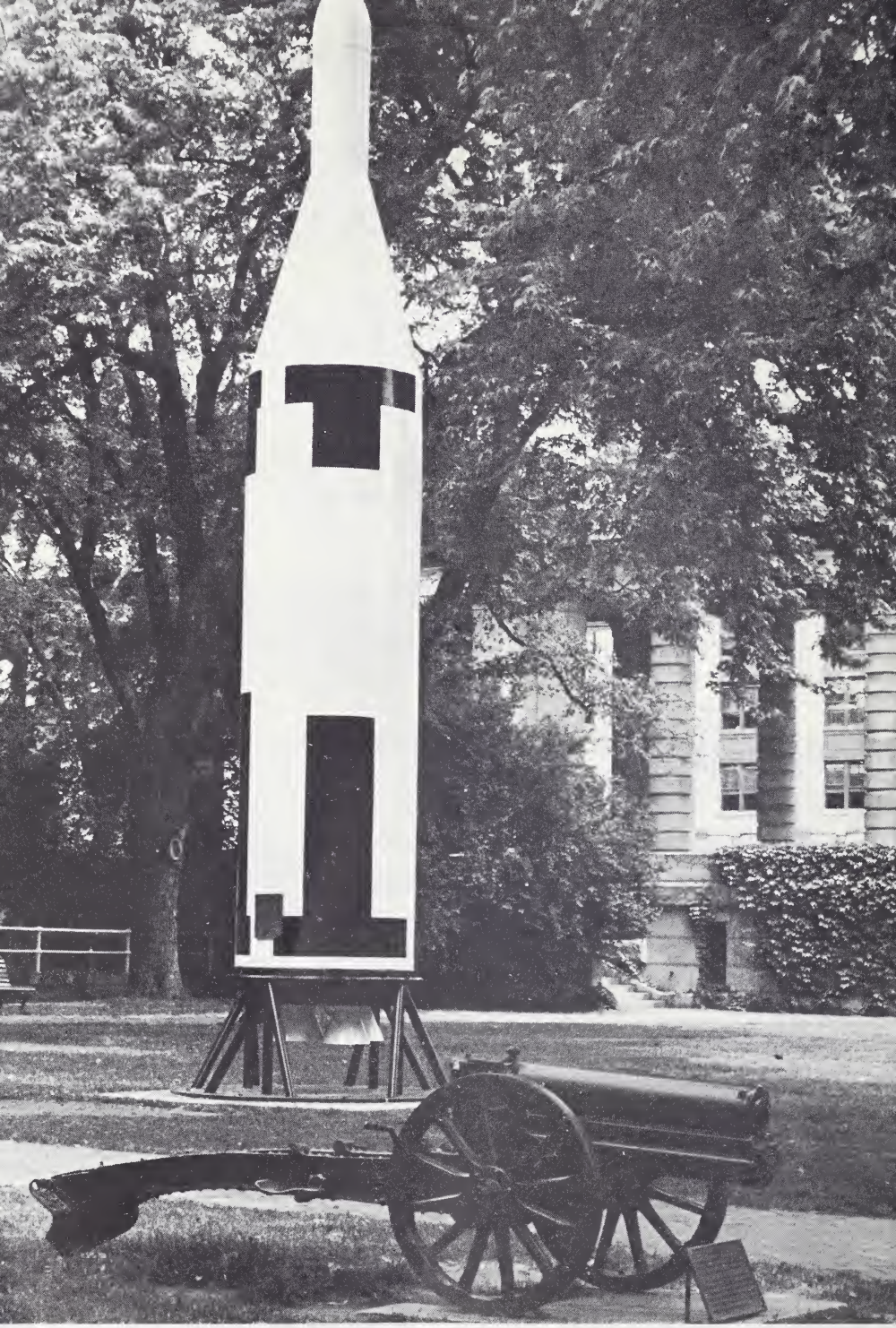
modern writings. Includes some composition. *Three semester hours each term.*

Survey of Spanish Literature. First Term. A background course to give the student an understanding of the main features of the great literary movements of Spain, with careful reading and critical discussion of the major literary creations. Discussions, written and oral reports in Spanish. *Three semester hours.*

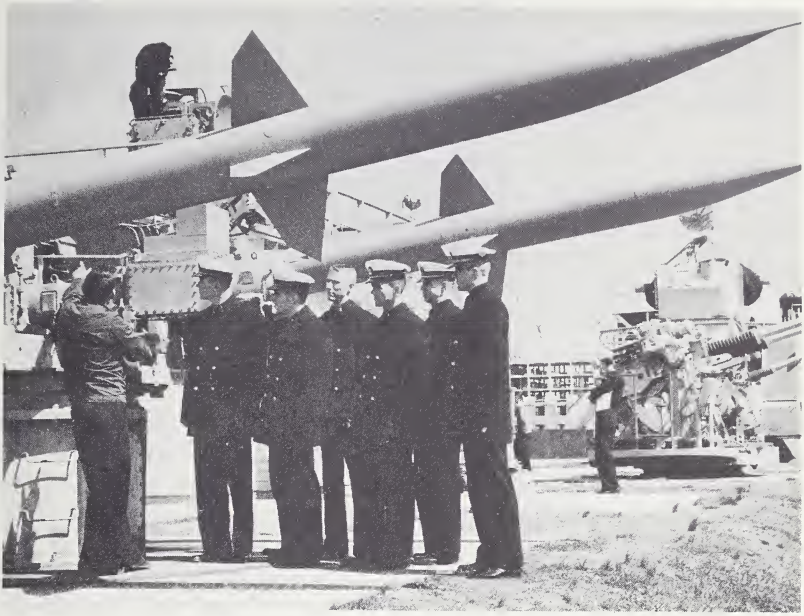
Survey of Spanish Literature. Second Term. Continuation of first term, but may be taken independently. *Three semester hours.*

Readings in Current Periodical Literature. This course is designed to give students experience in reading and discussing articles of current interest. Emphasis upon articles dealing with scientific and technical subjects and with international relations. Discussions, oral and written reports in Spanish. *Three semester hours.*

Contemporary Spanish Literature. This course will present a study of important Spanish and Spanish American writers of the 20th century through the reading of representative stories, plays, essays, and poems. *Three semester hours.*



Polaris missile overshadows arms of other days.



Naval Science

Director: Captain Harry A. Seymour, U.S. Navy

The courses offered by the Departments of the Naval Science Division are generally taught during the last 2 years of the midshipman's residence at the Naval Academy. In the Naval Science field the midshipman applies the education that he has acquired in his science and engineering studies to the examination of and further study in the professional areas he will encounter as a commissioned officer. The Navy operates in a complex environment, and the graduate must be prepared to cope not only with the command challenge of the naval profession but with technical problems covering the complete spectrum from undersea warfare to ballistic missilery as well. In his Naval Science studies the midshipman establishes a foundation of professional competence. His courses are designed to teach fundamental principles and the application of these principles to the solution of naval problems. With this background as a base he can, as a commissioned officer, apply himself to the effective control of specific equipment and operational techniques.

The Director of Naval Science has cognizance over instruction in the following departments:

Command Department
Naval Hygiene Department
Weapons Department

COMMAND DEPARTMENT

Head of Department: Captain Alonzo H. Wellman, Jr., U.S. Navy
Executive Officer: Commander George R. Bryan, Jr., U.S. Navy

The *objective* of the department is to teach the midshipmen the fundamentals of leadership, navigation, meteorology, methods of operations analysis, and naval operations in the air, on the surface, and under the seas. Electives in General Psychology, Advanced Navigation, International Law, Astronomy, Oceanography, Applied Oceanography, and Naval Strategy and Military Planning are offered.

The department courses are conducted in two phases. The first, consisting entirely of practical drills and extending over the first 2 years, is enhanced by practice cruise training during summer terms, and provides a progressive indoctrination in elements of the naval profession. The second phase, comprising all academic studies as well as drills and extending over the last 2 years, provides studies in navigation, the more advanced elements of naval operations, and the techniques of naval leadership and administration. Aviation experience is gained during Second Class summer. Participation as junior officers in an advanced practice cruise occurs during First Class summer. The midshipman is thus developed throughout the 4-year course for a naval career.

Description of Courses

FOURTH CLASS YEAR

Summer

Basic Seamanship and Navigation. Practical instruction and drills in elementary seamanship, including marlinspike and deck seamanship, power boat handling, sailing, rules of the nautical road, lookout procedures, signaling (flashing light and flags), elementary piloting and shiphandling aboard YP craft, and naval sea power presentations.

First and Second Terms

Seamanship. Practical instruction and drills in rules of the nautical road, marlinspike seamanship, Combat Information Center procedures, communications, elementary tactics and seamanship aboard YP craft, and shipboard orientation and naval indoctrination presentations. *Three-quarters semester hour.*

THIRD CLASS YEAR

Summer Cruise

During his summer cruise, the third classman is introduced to life aboard ship by serving in specific billets. He learns seamanship by par-

Aviation summer.

ticipating in various evolutions aboard. He performs ship's work, stands watches, operates boats, and exercises at shipboard drills. He completes practical factors for seaman and fireman and takes qualifying examinations for these rates.

Second Term

Seamanship. Practical instruction and drills in rules of the nautical road, communications, recognition, and fleet operations. A series of aviation and submarine indoctrination lectures are given in preparation for the second class summer training program. *One-quarter semester hour.*

SECOND CLASS YEAR

Summer Term

Broad professional Naval Officer training which emphasizes naval aviation, submarine and amphibious operations, missile orientation, as well as practical damage control and engineering instruction. Each midshipman participates in an amphibious landing operation, makes training flights in various type aircraft, participates in carrier and submarine operations, visits fleet aviation squadrons, receives missile indoctrination, and participates in practical damage control and engineering instruction.

First Term

Piloting and Navigation. Instruction in visual and radar piloting, including aids to navigation, navigation instruments, tides and currents, and charts and publications, supported by a float piloting and anchoring instruction and drill. The course covers the fundamentals of navigational astronomy and celestial navigation. *Three and one-half semester hours.*

Second Term

Leadership. A basic treatment of those areas of psychology which have the greatest implication and application to leadership situations. Classroom instruction in naval organization and administration with

particular emphasis on the shipboard aspects and the duties of watch and division officers aboard ship. *Two and one-half semester hours.*

Navigation. Celestial, electronic, and inertial navigation. Solutions of relative motion problems using the maneuvering board. Practical instruction in Loran and the Combat Information Center, and afloat tactical instruction and drills in the use of the sextant. *Three semester hours.*

FIRST CLASS YEAR

Summer Cruise

During his second afloat cruise the midshipman stands the watches and performs the duties of a junior officer. He is exposed to the social courtesies, amenities and customs of wardroom life aboard ship by subsisting in large part on the officers' mess. Training programs are employed consisting of day's work in navigation, lectures, and studies required in the completion of his cruise journal.

First Term

Leadership. Classroom instruction in the application of psychological principles to the practice of naval leadership. Foundation courses in military law and international law. *Two and one-half semester hours.*

Naval Operations. Instruction in tactics, relative motion, rules of the nautical road, naval communications, Combat Information Center procedures, including a study of the military planning process, and an introduction to game theory. Practical drills in shiphandling and tactics aboard YP craft, communications, rules of the nautical road, and Combat Information Center procedures. *Three and three-quarters semester hours.*

NOTE. The following course is offered to selected volunteer midshipmen in lieu of Naval Operations.

Taking a bearing.

Naval Operations Fundamentals. This course is a combination of essential subjects as necessary background for introduction to operating analysis. The course includes a study of relative motion, rules of the road, communications, search and detection, antisubmarine warfare, and an introduction to new concepts in Combat Information Center equipment and procedures. Drills are in tactics and CIC procedures. *Three and three-quarters semester hours.*

Second Term

Naval Operations. Instruction in the principles of warfare, including air and land warfare doctrine, and a detailed study of naval warfare. Naval warfare is subdivided into offensive, defensive, and logistic operations, showing the relationships of antisubmarine, amphibious, mine, and anti-air warfare, and striking force operations to current naval strategy. Practical drills are in Combat Information Center procedures, and tactics aboard YP craft. *Four and one-half semester hours.*

NOTE. The following course if offered to selected midshipmen in lieu of Naval Operations.

Introduction to Operations Analysis. This course involves a study of the methods employed in operations research. Emphasis is placed on the applications of operations research to military problems, including the analysis and formulation of problems, the derivation of related mathematical models, testing of models, weighing courses of action, and decision making. *Four and one-half semester hours.*

Meteorology. Basic meteorology and its applications to naval operations. *One semester hour.*

ELECTIVE COURSES

Astronomy. The principles and science of Astronomy. Astronomical coordinate systems, solar system and galactic system motions, spectrographic analysis, and cosmogony. *Two semester hours.*

Oceanography. A study of ocean basins, water masses, ocean currents, waves, tides, properties of sea water, and the collection and handling of scientific data at sea. *Three semester hours.*

Applied Oceanography. The application of the principles of oceanography to naval problems of suboceanic detection and concealment. The effects of marine organisms and thermal gradients on sonar search. *Three semester hours.*

International Law. A study of the development of the rights and duties of states, and the procedures employed by states in protecting

these rights and in performing these duties. Particular emphasis is placed on the legal status of war and the rights of neutrals and belligerents, international claims, pacific settlement of disputes, treaties, and international organizations. *Two semester hours.*

General Psychology. The study of normal human behavior, including motivation, emotion, the self; psychological factors of perception, thinking, and learning; evaluation of performance and ability; measurement and individual differences. *Two semester hours.*

Advanced Navigation. Specialized navigation theory and techniques. The sailings, chart and grid design, magnetic compass adjustment, polar navigation, lifeboat navigation, and Ship's Inertial Navigation System. An extended problem covering voyage planning and transit. *Three semester hours.*

Naval Strategy and Military Planning (Seminar). The interrelationship of naval strategy, national strategy, policy, and the applications in current international situations and commitments. The strategic effect of naval operations, U.S. naval force levels, and economic and cultural factors affecting the employment of naval power. A detailed study of military planning, the intelligence process, national and naval estimates, etc. *Three semester hours.*

NAVAL HYGIENE DEPARTMENT

Head of Department: Captain Walter Welham (MC), U.S. Navy

The objective of the department is to instruct each midshipman so that he may appreciate the value and necessity of personal hygiene, and realize his command responsibility for the promotion and maintenance of physical and mental health.

Description of Courses

FOURTH CLASS YEAR

Summer

Fundamentals of Hygiene. The midshipman is introduced briefly to the fundamentals of personal hygiene, including mental and physical hygiene and first aid.

FIRST CLASS YEAR

First Term

Naval Hygiene. Instruction covering the human body as a functioning machine, the care of the human machine, and the effect of the various military environments. *Three-quarters semester hour.*

WEAPONS DEPARTMENT

Head of Department: Captain William R. Werner, U.S. Navy
Executive Officer: Commander Richard T. Lyons, U.S. Navy

The objective of the Department is to provide midshipmen with the requisite professional education for performance of duty in the weapons field. Midshipmen receive classroom instruction in the principles of naval weapons and the systems that control them.

The classroom instruction is supported by practical instruction using equipment available to the Department. The practical instruction stresses the application of principles learned in the classroom, and understanding of weapons doctrine, control and alignment.

Description of Courses

FOURTH CLASS YEAR

Summer

Small Arms. Practical instruction in nomenclature, field stripping, and assembly of small arms. Firing of service rifle, and pistol. Those who qualify are awarded the U.S. Navy Expert Rifleman medal and the U.S. Navy Expert Pistol Shot medal.

THIRD CLASS YEAR

Summer Cruise

Instruction in safety precautions and ammunition handling. Midshipmen drill at General Quarters stations and man gun batteries and control stations for target firing exercises.

SECOND CLASS YEAR

First and Second Terms

Weapon components. Principles of explosive ordnance, guns and mounts, automatic control equipment including servos and synchros, exterior ballistics and basic mechanical analogs. *Two semester hours.*

Gun Fire Control Systems. The mathematical solution of the linear rate anti-air fire control problem, principles of fire control system stabilization, system applications of basic mechanical analogs, the relative rate anti-air fire control problem, basic electrical analogs, rate gyros and their applications in relative rate fire control systems, and principles of pulsed radar. Practical instruction in weapon control procedures, including the operation of directors, radars, computers, target designation equipment and mounts. *Two and one-quarter semester hours.*

FIRST CLASS YEAR

Summer Cruise

During the summer cruise, midshipmen of the First Class use their knowledge of weapon systems to control and fire gun and guided missile batteries. They receive practical instruction in weapons control systems, target threat evaluation equipment, safety precautions, and the duties of a gunnery watch and division officer.

First Term

Missile Systems. Principles of nonpulsed radar, guided missiles, ballistic missiles and their system applications. Practical instruction in guided missile control procedures, weapon direction equipment techniques, weapon system alignment procedures, and orientation on selected guided missiles. *Two and one-half semester hours.*

Second Term

Underwater Systems and Digital Computers. Special weapons effects, principles of digital computers, anti-submarine warfare and system applications, and weapons system design problem. Practical instruction in antisubmarine warfare and naval gunfire support doctrine and support procedures, general orientation on mines, submarine and aircraft weapon systems.

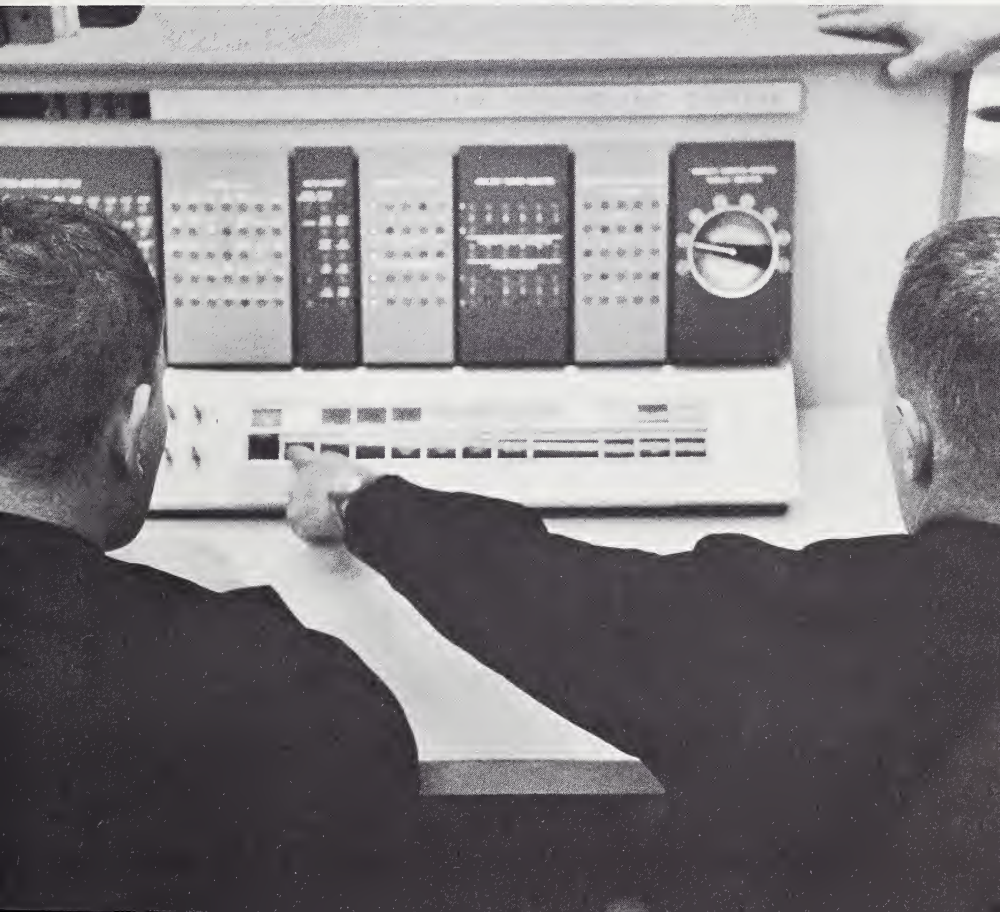
ELECTIVE COURSES

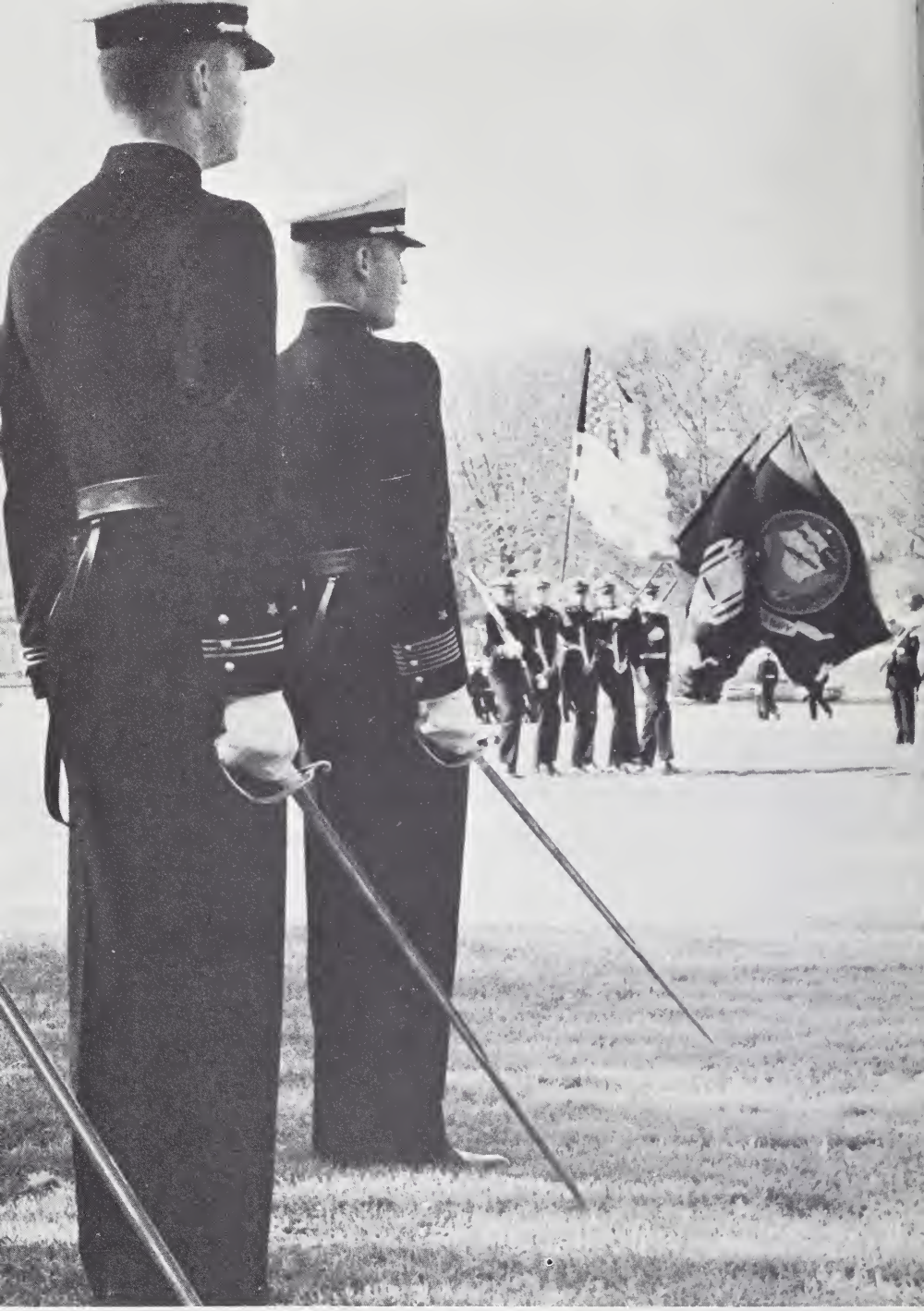
Analog and Digital Computer Fundamentals. A study of the fundamental principles of digital and analog computers, including the physical and mathematical bases, logical design, and applications to problems in science, engineering, and data processing. *Three semester hours.*

Analog and Digital Computers—Operation and Programing. A study of basic computer programing and principles of simulation for digital and analog computers. It includes analysis of the problem, setting up the computers, interpretation of results, and comparison of digital and analog capabilities. Practical problems in data processing, problem solving, and systems simulation will be performed with computers in the laboratory. *Three semester hours.*

Nuclear Weapons Effects and Employment. This course examines the general principles of nuclear explosions, the characteristics of air, surface, and subsurface bursts, and their effects on various types of targets. It includes applications for weapons employment against specific types of targets and determination of weapon size requirements from target damage requirements. CONFIDENTIAL. *Three semester hours.*

Missile and Satellite Trajectories. A study of the factors influencing space flight, including an examination of the principles of motion of a particle in a central force field, and the application of these principles in the analysis of the flight of ballistic missiles, satellites, and lunar and interplanetary probes. *Three semester hours.*





Passing in review.

The Commandant of Midshipmen

Commandant: Captain Charles S. Minter, Jr., U.S. Navy
Executive Officer, Bancroft Hall: Captain Julian T. Burke, U.S. Navy

The Commandant of Midshipmen has cognizance over training and education conducted in the Executive and Physical Education Departments. He serves as Head of the Executive Department, with the Executive Officer of Bancroft Hall as his principal assistant. Under the direction of the Commandant, the Head of the Physical Education Department supervises physical education drills and the intramural sports program.

EXECUTIVE DEPARTMENT

The Executive Department prepares the midshipmen for the exercise of command. The specific objectives of the Executive Department are: (a) To develop character and guide the development of proper military and personal habits; (b) to inculcate discipline and to foster the subordination of self to a common cause; (c) to develop in each midshipman an appreciation and knowledge of and motivation for his future role as a naval officer through personal example and practical application of the psychological principles of human behavior and the principles and techniques of leadership.

The officers of the Executive Department work and live in close contact with the midshipmen, enabling them to further the development of personal and military character through precept and example, counsel and guidance, and, when required, corrective or disciplinary action.

Description of Courses

FOURTH CLASS YEAR

Summer Term

Orientation and Indoctrination. An elementary course to orient the new midshipman in the naval service and to indoctrinate him with the way of life at the Naval Academy, its mission, ideals, standards, traditions, customs, and the duties required of him.

First and Second Terms

Infantry drills, watch standing, and continued indoctrination. *One semester hour.*

THIRD CLASS YEAR

First and Second Terms

Infantry drills, watch standing, elementary military responsibilities. *One semester hour.*

SECOND CLASS YEAR

First and Second Terms

Infantry drills, watch standing, increased military responsibilities. *One semester hour.*

Second Term

Personal Finance. A noncredit study of the principles of insurance, benefits available from the government to the survivors of military personnel, personal insurance programs and investments, and personal financial planning. Course includes budget planning for the junior officer. A review lesson is assigned during the First Class Year.

FIRST CLASS YEAR

First and Second Terms

Infantry drills, watch standing, and performance of specific responsible duties in the Brigade Organization involving the exercise of leadership and command. *One semester hour.*

PHYSICAL EDUCATION DEPARTMENT

Head of Department: Captain William S. Busick, U.S. Navy
Executive Officer: Commander Wesley R. Gebert, Jr., U.S. Navy

Each midshipman's skill, strength, endurance, agility, and competitive spirit are developed in order that he may be capable of surmounting severe physical hardships, be proficient in training and instructing others, and acquire useful habits of physical fitness.

Throughout the entire four years each midshipman is required to participate in a comprehensive and extensive program of intramural and intercollegiate sports. The objective of the program is to develop competitive spirit, confidence, and team work.

Description of Courses

FOURTH CLASS YEAR

Summer

Physical Education Orientation and Indoctrination. Preliminary examinations in swimming, posture, and athletic ability. Testing in physical achievement with subsequent preparation of class grouping. Physical education drills in fundamentals of swimming, boxing, and wrestling. Indoctrination drills in lacrosse, fencing, soccer, gymnastics, crew, golf, tennis, squash racquets, volleyball, and track.

First and Second Terms

Physical Education. Fundamentals of badminton, soccer, swimming, boxing, wrestling, gymnastics, golf, tennis, posture, volleyball, basketball, handball, bowling, and squash racquets. Tests in applied strength, agility, swimming, boxing, wrestling, and gymnastics. *Two semester hours.*

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THIRD CLASS YEAR

Physical Education. Continuation of instruction in swimming, boxing, wrestling, personal conditioning, tennis, golf, and gymnastics, and tests in applied strength, agility, swimming, boxing, and wrestling. *One semester hour.*

SECOND CLASS YEAR

Physical Education. Advanced instruction in swimming, boxing, tennis, golf, handball, officiating, posture, and principles of personal conditioning, hand-to-hand combat, and volleyball. Tests in applied strength, agility, swimming, and boxing. *One and one-quarter semester hours.*

FIRST CLASS YEAR

Physical Education. Instruction in advanced swimming, hand-to-hand combat, personal conditioning, tennis, golf, badminton, and athletic administration. Tests in measurement activities. *Three-quarters semester hour.*

THE LIBRARY

Mission.—The Naval Academy Library is the principal bibliographic reference and research organization for the Severn River Naval Command, organized under a professional Librarian and library staff to provide books, periodicals, related materials and information to aid the naval service. Its primary responsibility is to the Superintendent, the officers and civilian faculty, and the midshipmen; but it also performs important services for the officers stationed throughout the Command. As occasion may require, it extends its assistance farther afield to individuals throughout the country and even to foreign institutions.

To render these services, it has assembled one of the largest collection of naval books, periodicals and related material in the United States. In addition, the library provides all of the resources of a first class college library in support of the academic program, and aims to incorporate the latest authoritative material in all major fields of knowledge.

Location and holdings.—The Main Library is housed in reading and stack rooms in Mahan and Maury Halls. The collection comprises about 165,000 volumes, with many popular, technical and naval magazines. The collection is especially strong in naval history and biography; in works on the development of various types of ships, seamanship, navigation, aeronautics, ordnance and gunnery. It is well developed in history, biography, international law and relations, travel, and in reference works, with other subjects in lesser degree. A collection of current fiction and nonfiction is maintained for recreational reading. The books and periodicals are arranged on open shelves providing convenient access.

Bulletin boards in the library announce new books; the Library Bulletin issued biweekly lists selected newly acquired books with a brief descriptive note of their contents. Citations to articles in specialized naval, military or engineering journals, and at times to items of naval interest appearing in the general periodicals are included. The Library Bulletin is made available to all officers, professors and midshipmen.

Use of the library is extensive with 28,125 books circulated in 1960–61, and with 10,200 recorded reference and research inquiries. All midshipmen during their first summer receive 2 hours of formal instruction under the direction of the library staff in the use of the various periodical indexes, reference books, and other library tools. The purpose of the program is to acquaint midshipmen with the organization of the library, location of books, use of the catalog, and the best ways to look up information on a wide variety of topics.

The library provides officers, instructors, and midshipmen not only with facilities for professional study, but also with opportunities for widely based cultural and recreational reading.

Brigade Library.—In the fall of 1961 the Brigade Library, located between the recently completed seventh and eighth wings of Bancroft Hall, was placed in operation. Its resources, which are being built up to a designed capacity of between 15,000 and 20,000 volumes, include reference and professional materials, a carefully selected general collection in all fields and a generous allocation of fiction and recreational reading books. Two innovations, a separate room for naval and other periodicals, and a well equipped audio section with individual listening rooms for records and tapes of music and the spoken word

are important new features. This attractive new library is well lighted and comfortably furnished with formal and informal seating for over 200; a long schedule of open hours make it available at all the hours midshipmen are free to use it.

Departmental collections.—The departments of instruction maintain small departmental collections of texts, and of works relating to their particular fields for use of their instructional staffs. Significant titles in these locations are listed in the catalog of the Main Library.

TRAINING UNDER SAIL

Training under sail at the Naval Academy is for the purpose of developing team discipline, leadership, and appreciation of the sea and ships. In an age of nuclear power there is still a strong need to develop moral courage and resourcefulness in men at sea. Ship handling and basic deck seamanship are still factors to be counted in bringing any ship into port, whether she be powered by sail or nuclear reactor. The sail training program at the Academy fosters opportunities for acquiring each of the aforementioned qualities and skills. The Academy is utilizing one of the finest facilities in the world, as well as some of the finest and best known boats in ocean racing circles.

The Academy's 62-foot cutter *Highland Light* was holder of the record for elapsed time in the Newport-Bermuda ocean racing classic for 22 years, and the 71-foot yawl *Royono* was first to cross the line in the 1952 race. The sailing fleet ranges from the 88-foot schooner *Freedom*, the 50-foot yawls *Windfall II* and *Gypsy*, and twelve 44-foot yawls, to 14-foot dinghies. Thirty Gannet dinghies are used for advanced training and intercollegiate competition.

Competitive experience is gained during the school year with the larger boats on the Chesapeake Bay in open competition, and in one-design intercollegiate and intramural contests in the 44-foot Luder's yawls and 14-foot dinghies. The Naval Academy varsity dinghy sailing team is among the best in the country, has placed three of its members in the 1960 Olympic Finn monotype eliminations, as well as holding the present Middle Atlantic Dinghy Championship. During the summer the larger boats are sailed on the open ocean as a postgraduate sailing exercise in the Bermuda and Annapolis-Newport ocean races.

Sail training beyond the primary stages is administered by the Naval Academy Sailing Squadron, an organization composed of officers and personnel of the Severn River Naval Command interested in contributing to he welfare and ultimate success of Academy sailing. Advanced sail training, as such, is voluntary. All midshipmen are given about 2 hours training in knockabouts and dinghies and 4 hours in yawls. About one-quarter of the Brigade participates beyond primary training in competitive and recreational sailing. The Naval Academy Sailing Squadron, as well as conducting this advanced training, serves as a liaison with the sailing fraternity everywhere, as sailing at the Academy not only gives vital insight to the Navy itself but is the midshipman's first experience in carrying the Navy to other ports.

THE EVENING LECTURE PROGRAM

The principal lecture series conducted at the Naval Academy is that given to the First Class Midshipmen. The educational methods employed at the Naval Academy in general demand of the student a high

Adm. George W. Anderson, Jr., USN.

Dr. Milton S. Eisenhower.

Vice Adm. W. R. Smedberg III, USN.

Hon. John B. Connally, Former Secretary of the Navy.

order of concentration and intense application and are characterized by sharp focus in the presentation of subject matter. Therefore, it is particularly appropriate during the First Class year to provide a better understanding of the challenging problems in the areas of command and administration, and of concepts of broad intellectual implication. The First Class lecture series endeavors to do this by securing speakers who are outstanding in their field, and of wide experience and understanding, whose contribution to the midshipman's perspective will be of lasting value. The lecture series emphasizes matters of professional naval interest, subjects in the liberal arts, foreign policy with respect to the current world situation, and the role of the Navy in meeting national security responsibilities.

During calendar year 1961, the First Class Lecture Program was as follows:

8 Jan Rear Admiral Thomas J. Kelly, U.S. Navy (Retired), Assistant to the Chairman of the Board, the Socony Mobil Oil Company. Subject: The Strategic and Economic Importance of Oil, Especially That of the Middle East.

8 Feb Lieutenant Lawrence A. Shumaker, Lieutenant Don Walsh, U.S. Navy, and Dr. Andreas B. Rechnitzer, Project Nekton. Subject: The Dive of the Bathyscaphe *Trieste*.

23 Feb Dr. Paul M. A. Linebarger, Professor of Asiatic Politics, School of Advanced International Studies, The Johns Hopkins University. Subject: Red China and Its Leaders.

14 Mar Mr. Bertram D. Wolfe, author, lecturer, and one of this nation's foremost students in the field of Russian politics. Subject: United States and Russia: Dreams and Reality.

22 Mar Dr. Milton S. Eisenhower, President, The Johns Hopkins University, Baltimore, Md. Subject: Latin American Affairs.

7 Apr	Professor Paul H. Engle, Professor of English, The State University of Iowa. Subject: Poetry and People.
20 Apr	Admiral Arleigh A. Burke, U.S. Navy, Former Chief of Naval Operations.
19 Sep	Vice Admiral W. R. Smedberg III, U.S. Navy, Chief of Naval Personnel. Subject: Leadership Programs in the Navy.
31 Oct	Vice Admiral William F. Raborn, Jr., U.S. Navy. Subject: Polaris in the Years Ahead.
7 Nov	Admiral Claude V. Ricketts, U.S. Navy, Vice Chief of Naval Operations. Subject: Naval Power in General and Limited War.
21 Nov	SACLANT NATO Briefing Team (Admiral R. L. Dennison, U.S. Navy). Subject: The NATO Alliance.
28 Nov	Vice Admiral Robert B. Pirie, U.S. Navy, Deputy Chief of Naval Operations (Air). Subject: Naval Aviation—Past and Future.
5 Dec	Honorable John B. Connally, Former Secretary of the Navy. Subject: Roles and Missions of the Navy.
12 Dec	Admiral G. W. Anderson, Jr., U.S. Navy, Chief of Naval Operations. Subject: Responsibilities of Naval Officers.

PRIZES AND DISTINCTIONS

Each year more than 50 prizes and awards are presented to midshipmen for outstanding accomplishments in academic work, for marked proficiency in professional departments, or for excelling in contests of knowledge about such matters as world history of the present day, and in debate and public speaking.

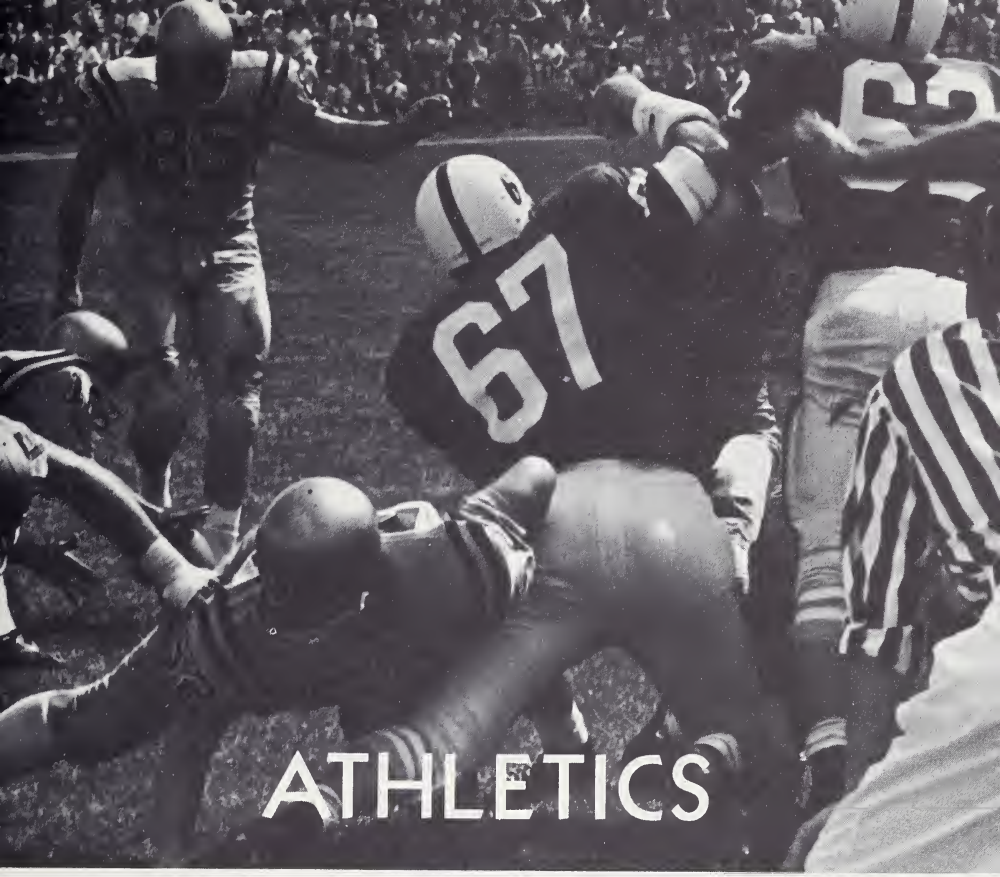
Prizes normally consist of selected items which will be useful in a professional or personal way upon graduation. In some cases the prize or award is specified by the donor but in many the choice of a prize, within certain limitations, is left with the recipient.

These prizes and awards are provided by national patriotic organizations and societies, by former Naval Academy classes, by or in behalf of outstanding leaders in military and civilian life, as memorials to deceased graduates, and by organizations recognized widely in some field of activity or endeavor with a direct or indirect naval association or affiliation.

One of the more noteworthy distinctions which can befall a member of each graduating class is to be a recipient of a letter of commendation from the Superintendent. In 1961, 24 midshipmen received this high honor for having demonstrated outstanding officerlike qualities and for having contributed most by precept and example to the development of those qualities within the Brigade of Midshipmen.

Appropriate awards also afford recognition to those who excel in athletics and who participate in the many extracurricular activities which help to broaden and enrich the lives of the members of the Brigade of Midshipmen.

Superintendent leads pregame rally.



ATHLETICS

Athletics at the Naval Academy

Athletics are an important part of the overall training program at the Academy. The physical facilities for these activities are among the finest to be found anywhere. Nearly every intercollegiate sport is represented by varsity teams. Junior varsity and intramural sports programs are available for midshipmen throughout the year.

The emphasis is on competitive athletics, and a great portion of the program is devoted to contact sports. Through expert instruction, midshipmen are taught the fundamental of sports as participants, coaches, and officials.

Intercollegiate Athletics

Naval Academy teams meet the finest opposition in intercollegiate athletics, playing representative colleges and universities from all parts of the country.

Among the sports included in this extensive competition are: football, baseball, basketball, lacrosse, crew, soccer, cross country, fencing, track, swimming, wrestling, gymnastics, golf, tennis, rifle, pistol, sailing, and squash.

Standing watch.

Bill is ready.

At the big game.

Football

Navy football teams have all the tradition and color of the Service they represent. Though the yearly schedule lists many of the big names in college football, the major game of the season is the traditional battle with the United States Military Academy. This annual contest between two of the service academies ranks high among the nation's outstanding sports events. Navy football boasts varsity, junior varsity, plebe, and 150-pound teams, as well as six battalion teams. On whatever level of participation a midshipman chooses, he is assured of expert coaching and ample opportunity for competitive play.

Basketball

Navy basketball teams, in addition to meeting the best in collegiate competition during the regular season, have accepted invitations to major post-season tournaments.

Crew

Navy crews over the years have had remarkable records of success. Their recent achievements include winning the 1952 Olympic rowing championship, completing the 1953 and 1954 seasons undefeated, climaxing their triumphs in those years with victories over ten other crews in the Intercollegiate Rowing Association Regatta, and establishing the longest unbroken winning streak in collegiate rowing history. Navy's crew also represented the United States in the 1960 Olympic Games in Rome, Italy.

Fencing

Navy fencing teams have frequently captured the National Intercollegiate Championship, and Navy fencers have held individual foil, épée, and saber titles.

President Kennedy crossing to Navy at half-time.

The Navy-Marine Corps Memorial Stadium, scene of the Navy's home football games, is dedicated to "those who have served and will serve, upholders of traditions and renown of the Navy and Marine Corps of the United States. May it be a perpetual reminder of the Navy and Marine Corps as organizations trained to work hard, play hard—in war defenders of freedom, in peace, molders of our youth."

Leaders in intercollegiate fencing.

A strong finish.

CROSS-COUNTRY competition at the Naval Academy teaches the midshipmen the value of conditioning and stamina. From the new Plebe to the upper classmen—cross country offers a challenge to all.

Navy's soccer squad starts a drive down the field.

Indoor track.

Sailing at the Naval Academy is a must for midshipmen. Competition in sailing events in the dinghies give the midshipmen an excellent background for bigger events. During 1961 they won the Service Academy Regatta, plus the Mid-Atlantic Interscholastic Sailing Association Trophy.

Rounding the mark.

Winter Sports

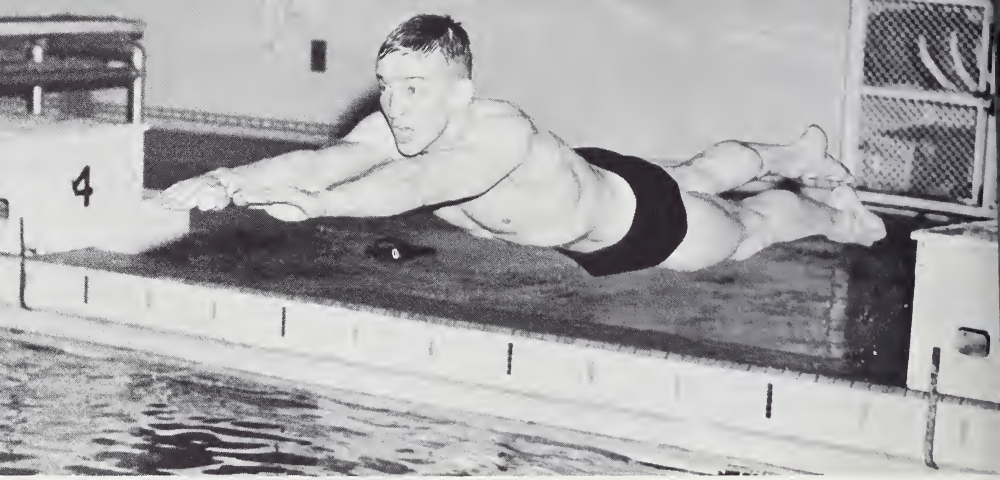
The Academy's huge fieldhouse houses one of the best indoor tracks. This affords the midshipmen the opportunity to compete in track events year round.

Navy wins.

All midshipmen receive wrestling instruction as part of their personal defense phase of training. Competition in college events and brigade wrestling events gives them ample opportunity to test their newly acquired skills.

Navy's basketball teams have always held a high ranking in the college competitions on the East coast. In the 1959 season and again in '60 Navy won a place in the NCAA tournament, and in '61 a place in the NIT tournament.

Big weekend. The climax of each of the three sport seasons is reached when the Naval Academy teams meet the Military Academy. These contests frequently upset the predictions of the experts and always result in hard-fought games creditable to the participants on both sides.



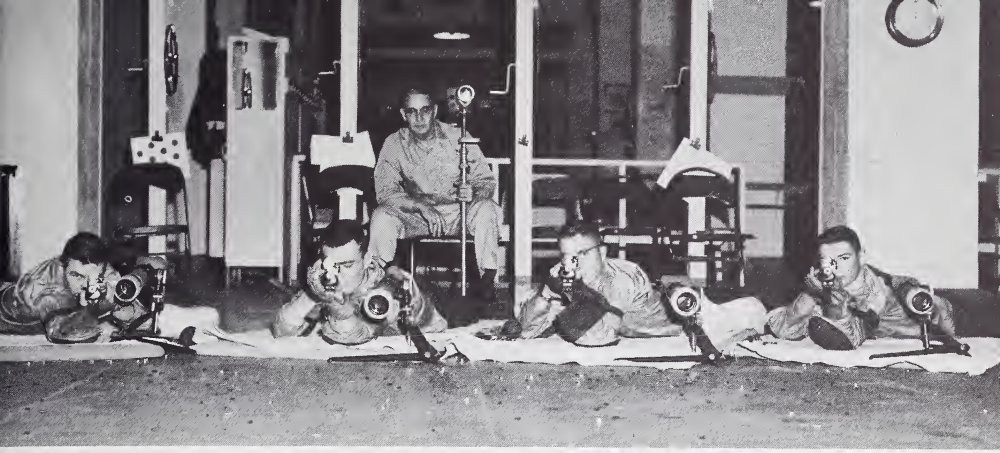
Navy's 1960–61 swimmers shared the Eastern Championship with Yale University.

Swimming

The Academy boasts one of the best natatoriums in the country. Here the midshipmen not only learn to swim, but compete in swimming events with other colleges.

Gymnastics

Gymnastics, one of the top conditioners, is prominent at the Academy. In 1960–61 the gymnastics team enjoyed an undefeated season, winning all seven of its matches, as well as the Eastern League Championship.



A member of Navy's pistol team. Shooting seems to come naturally to midshipmen.

Navy's squash team, among the best in the college circuit, was undefeated in collegiate competition in the '61 season.

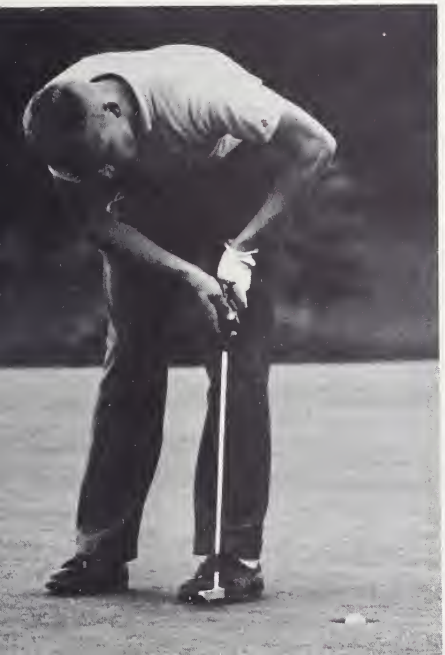
Keen competition makes good crews.

Baseball

The baseball squad is rated among the best in the East. Competing in the Eastern League, the varsity team has had many successful seasons, including league championships in 1954, 1959, and 1961. Just before June Week (graduation time) the season closes with the colorful and traditional game between Army and Navy.

Golf

Golf was started at the Naval Academy in 1908, but was not made a varsity sport until 1934. Navy has defeated Army 14 times while losing only 5. In 1950 and 1957 Navy won the Eastern Intercollegiate Championship. The coach, Bob Williams, has been an instructor since 1928, and the varsity coach since its origin.



Track

The track season at the Naval Academy includes the entire year. From out-of-season track practice in the fall, the trackman goes to indoor track in the winter, and finally to the important spring season. Thompson Field is the scene of fall and spring workouts, and the new Field House houses indoor track facilities.

Tennis

Tennis is one of the few sports which can be played extensively after graduation. The Naval Academy tennis facilities are outstanding. The varsity has six Har-Tru courts located next to Ward Hall. Between Stribling Walk and Dewey Field, there are 24 more courts for general use. Navy's net teams are ranked in the top of the eastern college teams.

Lacrosse

Lacrosse is the oldest native American game. It was originated by the Indians, and next to war, was their major interest. The site of this rugged sport at the Naval Academy is Dewey Field, and many a spring afternoon crowd is there witnessing Navy's team in action. Eight national championships have been won by Navy since 1926, when they entered the U.S. Intercollegiate Lacrosse Association. The team is coached by Willis Bilderback who was named "Coach of the Year" in 1960.

Track.

INTRAMURALS

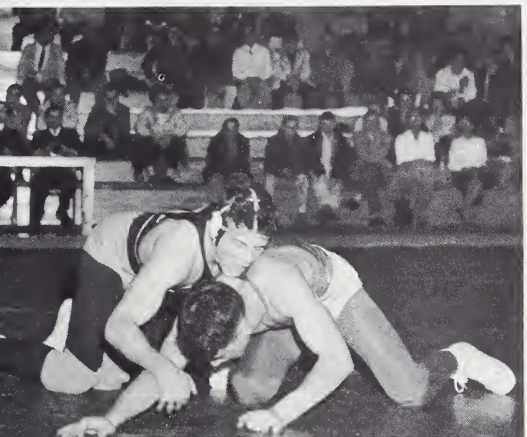
Intramural Sports Program. The sports program of the Department of Physical Education includes competition for the midshipmen in 24 different sports. All midshipmen not on organized teams are required to take part in the intramural sports program. In this way, the midshipmen may compete with others possessing similar athletic ability, while utilizing a fine opportunity for physical development and recreation.

The list of intramural sports includes: basketball, bowling, boxing, crew, cross country, fencing, fieldball, football, golf, gymnastics, handball, lacrosse, pistol, sailing, soccer, softball, squash, steeplechase, swimming, table tennis, tennis, touch football, track, volleyball, water polo, and wrestling.

Gymnastics.

Volleyball.

Wrestling.



Boxing.

Fieldball.

Cheerleaders in action.

Extracurricular Activities

Many extracurricular activities go on within the confines of Bancroft Hall. These activities are both many and varied and serve a multiple of purposes, both to the Naval Academy and the midshipmen. A few of the more than 70 activities are pictured.

. . . each day from the last class to evening meal formation the corners of the Hall are beehives of activity, ranging from Art to Politics and from Chess to Broadcasting.

The Brigade Executive Committee, composed of the Brigade Commander, the upperclass presidents, the First Class Secretary, and 6 battalion representatives, is responsible for the administration of the 3,800-man Brigade of Midshipmen.

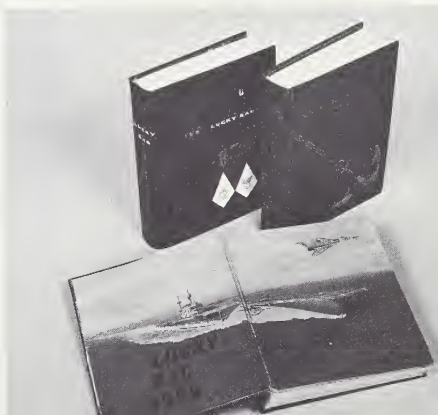
PUBLICATIONS

Trident

Trident magazine was conceived for those midshipmen with literary and artistic tastes.

Lucky Bag

A committee is chosen to put out the class yearbook *Lucky Bag* which covers the entire 4 years at the Naval Academy and usually numbers well over 700 pages.



Log and Splinter

Two other publications, the *Log* and *Splinter*, are published bimonthly by separate staffs.

Art and Printing Club

The Art and Printing Club provides an outlet for those with the right talent. The Club is especially busy during the football season when the "BEAT ARMY" slogans are so prevalent on the Academy grounds.

The Photo Club

The Photo Club is the delight of all amateur photographers in the Brigade of Midshipmen. Aside from the excellent facilities they have access to, they have the satisfaction of seeing much of their work published in the various magazines which the Academy publishes.

Radio Station

Members of the Academy's own radio Station WRNV "Radio Navy" provide music, broadcasts of Navy athletic events, and the news for the benefit of the Brigade.

Model Club

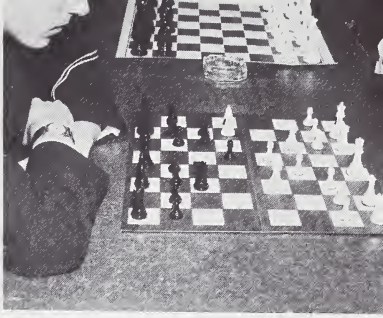
The Model Club offers a wide variety for those with varying interest in automobiles, planes, or trains.

Foreign Languages Club

The Foreign Languages Club stimulates a growing interest in enabling midshipmen to speak a foreign language fluently.

Chess Club

Members of the Academy's Chess Club engage in club and team matches. One of the highlights of the year is the interbrigade competition for the Ditmar Cup.

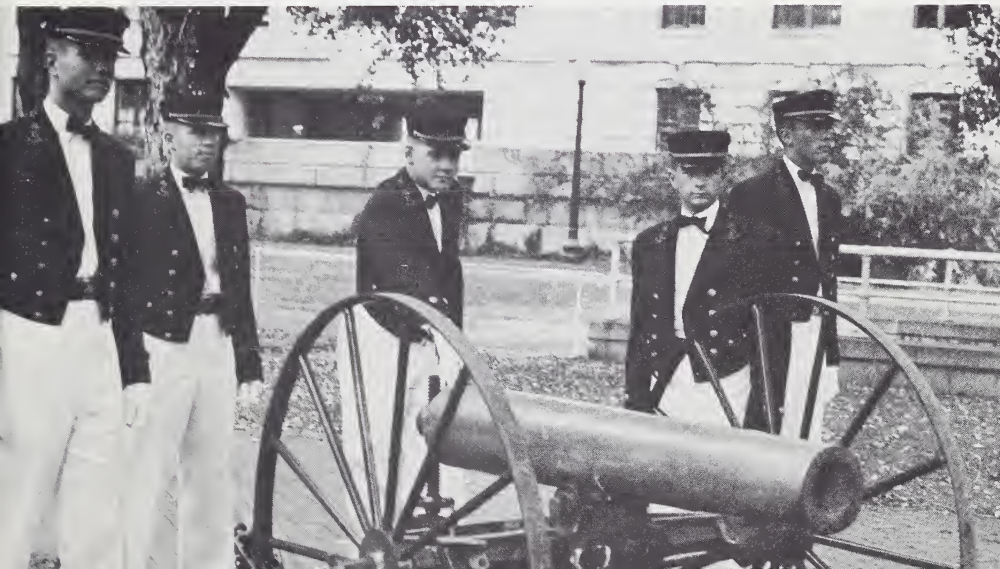


Radio Club

Amateur radio bugs are in their glory with the fine facilities offered at the Academy.

Forensics

Debaters of the Naval Academy Forensic Society generate much goodwill for the Naval Academy during their travels to various colleges and universities for their debate sessions. The Academy team vies for honors in the Intercollegiate debates each year.



NA–10

The Midshipmen's combo, the "NA–10," plays at many of the dances and activities as an extracurricular activity.

Dramatic Club

The Naval Academy *Masqueraders* stage an annual theatrical production.

MUSICAL ORGANIZATIONS

The Chapel Choir.

The Drum and Bugle Corps.

Musical Club Show.

The Glee Club sings Christmas Carols.

How To Become a Midshipman at the Naval Academy

Each candidate for admission to the Naval Academy must:

1. Meet general eligibility requirements.
2. Obtain a nomination.
3. Qualify scholastically (academically).
4. Qualify physically.

GENERAL ELIGIBILITY REQUIREMENTS

Citizenship

All candidates for admission to the United States Naval Academy must be male citizens of the United States, except as provided by law for limited numbers of citizens of other American Republics, and the Philippine Republic. An alien can be admitted as a midshipman only by an Act of Congress.

Age

Age limits are established by law. Candidates must be between 17 and 22 years of age. Each candidate must have reached his 17th birthday but not have passed his 22d birthday on or before 1 July of the year in which admission is desired to be eligible for admission.

Character

Candidates must be of good moral character. This prerequisite is usually passed upon by the Member of Congress making the nomination. The Secretary of the Navy may, however, decline to accept the nomination of any candidate in the event conclusive evidence of unsuitable character is submitted. For other sources of appointments, investigation of character qualifications rests jointly with those authorized by law to sponsor such nominations and the Navy Department.

Marital Status

No person who is married, or who has been married, is eligible for admission to the Naval Academy, regardless of his other qualifications. Midshipmen may not marry, and any midshipman found to be or have been married will be discharged.

OBTAINING A NOMINATION

There are several ways of obtaining a nomination for admission to the Naval Academy. The variety of types of nominations is intended to make it possible for young men from all over the United States to compete for appointments as midshipmen. In the following paragraphs, prospective candidates may learn what appointments they may be eligible for, and how to apply for a nomination for each. In some cases, candidates will find that they are eligible for more than one type of nomination. In such cases, it will usually be to their advantage to apply for more than one nomination.

Candidacy must be established in time to participate in the March administration of College Entrance Examination Board Tests. The Naval Academy will also consider for academic qualification results obtained on the immediately preceding December or January tests of the College Board. Early application and participation in the entrance tests is encouraged. Only the Chief of Naval Personnel may issue authority to take the necessary College Board tests as a formally designated candidate for appointment to the Naval Academy.

Presidential Appointments

Presidential appointments are available to sons of officers and enlisted personnel of the regular Army, Navy, Marine Corps, Air Force, and Coast Guard. To make application for appointment from this source, the candidate or his parent should address a letter to the Chief of Naval Personnel, Navy Department, Washington 25, D.C., clearly indicating the Service connection of the parent and giving the son's full name and date of birth. The letter of application should also designate the year in which admission to the Naval Academy is desired. Letters of application should be forwarded any time after July 1 of the year preceding that in which admission is desired, but not later than February 1 of the admission year.

Seventy-five candidates may be appointed annually from this source. In the event of vacancies in the annual quotas of appointments authorized from the Navy and Marine Corps and the Naval and Marine Corps Reserves, qualified Presidential nominees in excess of the normal Presidential quota may be admitted to fill such vacancies.

Congressional Appointments

The Vice President of the United States, each United States Senator, each Representative in Congress, and the Resident Commissioner of

Tecumseh in war paint.

Puerto Rico may have five appointees at the Naval Academy at any one time. The Vice President makes his nominations from the United States at large. The United States Senators must make their nominations from among residents of their respective States, and the Members of the House of Representatives must make their nominations from among residents of the Congressional districts which they represent.

Members of Congress are authorized to nominate a maximum of six candidates for each vacancy. The Candidates so nominated are usually designated as the principal and the first, second, third, fourth, and fifth alternates. Members of Congress may designate their nominees as competitive alternates and leave to the Academic Board at the Naval Academy the designation of the principal and the arrangement of the alternates based upon order of merit.

Application for nomination should be made directly to the Vice President, Senator or Representative. It is in order for a candidate to include in his letter of application for a nomination such items as favorable endorsements by school officials and others. Application should be made at least a full year in advance of the year in which the candidate hopes to enter as a midshipman, because some Members of Congress require candidates to compete for nominations by taking a special examination for that purpose. Such examinations are usually held in July or November, and they are not to be confused with, or considered a substitute for, the College Entrance Examination Board tests required by the Naval Academy.

Appointments From the Regular Navy or Regular Marine Corps

One hundred and sixty appointments annually are available to enlisted men on active duty in the regular Navy or Marine Corps. Enlisted men desiring to become career commissioned officers should apply to their commanding officers for permission to take a preliminary screening examination which will be given throughout the Naval Establishment early in July of the calendar year preceding that in which admission to he Naval Academy is sought. Those who successfully pass the initial screening measures will be assigned to the preparatory school which the Navy maintains to aid enlisted candidates in their preparations for the formal entrance tests and for the Naval Academy program. The entrance tests consist of the College Entrance Examination Board Scholastic Aptitude Test and achievement tests in English and mathematics. The competitive rating of the successful candidates will be determined by the Naval Academy Academic Board, and will be predicated upon a "whole man" evaluation, including test scores; school records; extracurricular activities, both athletic and nonathletic; and upon the assembled evidences of motivation and good character. Qualified candidates in excess of this quota may be appointed to fill vacancies in the quotas of the President and the Naval and Marine Corps Reserves.

Appointments From the Naval Reserve or Marine Corps Reserve

One hundred and sixty appointments annually are available to enlisted men of the Naval and Marine Corps Reserves, whether on active or inactive duty. Applicants must have had at least 1 year in the Reserve by July 1 of the year of admission to the Naval Academy. They must have attended a minimum of 26 drills between July 1 and March 15, and must have had 14 days of active duty for training between April 1, 1962, and March 15, 1963. Active service may be accepted in lieu of drills, 1 full day of active service being the equivalent of one drill.

Those who are successful in obtaining authority to compete for appointment from this source will be authorized to appear for the formal entrance tests, which consist of the College Entrance Examination Board Scholastic Aptitude test and the one-hour achievement tests in mathematics and English. The competitive rating of the successful candidates will be determined by the Naval Academy Academic Board, and will be predicated upon a "whole man" evaluation, including test scores; school records; extra-curricular activities, both athletic and nonathletic; and upon the assembled evidences of motivation and good character. Qualified candidates in excess of this quota may be appointed to fill vacancies in the quotas of the President and of the Regular Navy and Marine Corps.

Congratulations.

Naval and Marine Corps reservists who are on regular (not training) active duty at the time of formal nomination for appointment may also apply for assignment to the preparatory school which the Navy maintains to aid enlisted candidates in their preparations for the entrance tests, and for the Naval Academy program.

Appointments From Honor Military and Naval Schools

An honor graduate or a prospective honor graduate of a designated honor military or naval school should apply to the principal of his school for nomination as a candidate for admission to the Naval Academy. Each designated honor military or naval school may nominate 3 honor graduates or prospective honor graduates each year to compete among themselves for 10 vacancies for midshipmen. The details of submitting nominations are handled by the school concerned and the Chief of Naval Personnel, Navy Department, Washington 25, D.C.

Appointment From NROTC Units

Only contract students in the Naval Reserve Officers Training Corps units at the various colleges and universities are eligible to apply for appointments from this source. Contract students should apply to the professor of naval science at the college or university, who will in turn forward his recommendations to the president of the college. Not more than 3 candidates may be nominated each year by each of the educational institutions in which an NROTC unit is in operation to compete among themselves for 10 vacancies to the Naval Academy.

Other Sources of Appointments

Those applying for nominations under the laws providing for the sons of deceased veterans and the sons of holders of the Medal of Honor should write to the Chief of Naval Personnel, Navy Department, Washington 25, D.C. Such applicants should give the full name, rank or rating, and organization of the deceased veteran or the holder of the Medal of Honor, the full name of the candidate for appointment as midshipman, his date of birth, and such other pertinent information as will assist in the positive identification of both the parent and the candidate. Residents of the District of Columbia should apply directly to the Commissioners of the District of Columbia for full details at least 1 year in advance of the year in which the candidate hopes to enter as a midshipman.

Application for appointment from the Canal Zone must be addressed to the Governor of the Canal Zone, and application for the appointment of a native of Puerto Rico must be addressed to the Governor of Puerto Rico.

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Additional Appointments From Among Qualified Alternate Nominees and Competitive Candidates

The Secretary of the Navy is authorized to appoint additional midshipmen from qualified alternates and qualified competitive quota candidates in order to bring the Brigade of Midshipmen to authorized strength. When the number of additional admissions is determined, the Academic Board will review the records of all scholastically qualified candidates within each nomination source. Application by the individual is not necessary or desired since all qualified candidates are considered by the Academic Board. Selections will be made from those whose records are outstanding in scholarship, whose character and personality are established as decidedly superior in statements of recommendations from school and other officials, and in whose cases there is marked evidence of leadership potential as indicated by class offices held, participation in extracurricular and community activities, and other achievements of note. At least two-thirds of those so appointed must be from qualified congressional alternates.

QUALIFYING ACADEMICALLY

Scholastic Preparation

The scholastic requirements for admission to the Naval Academy and the arrangement of the first-year course of instruction anticipate a 4-year high school course as the minimum of preparation. The ideal arrangement of preparatory studies is one which includes 4 years of English; at least 3 years, but preferably 4 years of mathematics including algebra, geometry, and trigonometry; chemistry; physics, U.S. history; at least 2 years of a foreign language; and mechanical drawing. The remaining courses necessary to round out the full high school schedule should be chosen from courses such as biology, the foreign languages, philosophy, astronomy, economics, government, physical geography, or from among other subjects in the social or physical sciences. At least 15 units of credit should be presented. Graduation from an accredited 4-year high or preparatory school (or its equivalent) is mandatory, and the record of work done must be acceptable to the Naval Academy Academic Board in terms of subject matter and level of achievement. Preparation should be thorough, because at the Naval Academy the pace is rapid and midshipmen are required to participate in other areas of instruction looking toward the development of suitable military character.

The courses in the desirable subjects that are offered in the high and preparatory schools throughout the country that are accredited by the recognized accrediting agencies are adequate in content and scope to fulfill Naval Academy requirements and in preparation for the essential College Entrance Examination Board tests.

Method of Qualifying

There are two methods by which a candidate may qualify academically for admission to the Naval Academy:

1. College Board tests and secondary school record.
2. Secondary school and college certificates.

Candidates holding noncompetitive congressional nominations and the sons of holders of the Medal of Honor are permitted to utilize either of the two methods, and in these instances it is the candidate's responsibility to determine which method offers him the greater possibility of success. All other candidates must take the necessary College Entrance Examination Board tests in December, January, or March of the school year preceding admission.

In the following brief description of the two methods, only the essential features are covered. Candidates, prospective candidates, and school officials are invited to correspond with the Admissions Officer, U.S. Naval Academy, Annapolis, Md., regarding any point in the admission requirements on which further information is desired.

All candidates for admission must have an accredited high school certificate. It is important that each candidate insure that his complete high school record and the record of any college work which he may have completed be furnished the Naval Academy.

College Board Tests and Secondary School Record Method

The basic method of qualifying is by presenting an acceptable secondary school record and taking the College Entrance Examination Board tests, as follows: The Scholastic Aptitude Test (verbal and mathematics sections), the English Achievement Test, and either the Intermediate or the Advanced Mathematics Achievement Test.

All candidates for appointment from the various competitive sources and all other candidates not qualifying by the College Certificate Method must take this series of tests.

Each duly nominated candidate must register with the College Entrance Examination Board for the December, January, or March series of tests as promptly as possible after receiving the necessary instructions from the Bureau of Naval Personnel, Navy Department, Washington 25, D.C. These instructions will provide for payment by the Navy of fees for tests.

Information on the tests, including dates of administration, location of testing centers, dates by which candidates must register, method of application, etc., is published in a booklet entitled *Bulletin of Information.* A copy may be obtained without charge by writing to the College Entrance Examination Board, Post Office Box 592, Princeton, N.J., or Post Office Box 27896, Los Angeles 27, Calif.

Satisfactory scores on the College Entrance Examination Board Tests will be determined by the Academic Board of the Naval Academy. No candidate will be admitted to the Naval Academy unless in the opinion of the Academic Board he shows the requisite mental qualifications.

A high school certificate is required for eligibility and school records will be a consideration in determining whether or not a candidate is to be accepted. A good secondary school record is one which reports grades of good quality for a desirable arrangement of preparatory courses chosen from those listed above under the heading of "Scholastic Preparation," and a breadth of school interests and extracurricular activities indicative of a well-rounded student.

College Certificate

This method of fulfilling the educational requirements for admission is available only to candidates holding noncompetitive congressional nomination and to sons of holders of the Medal of Honor.

To qualify by the college certificate method, a candidate must, in addition to satisfying the requirements in a secondary school certificate, present a certificate from an accredited junior college, technological

Midshipmen embarking for Norfolk and the Oyster Bowl Game.

school of college grade, college, or university, attesting the completion of 1 year of college work with grades acceptable to the Naval Academy. The college certificate must include at least 6 semesters hour of mathematics selected from college algebra, trigonometry, calculus, etc., 6 of college English and/or history, and sufficient other subjects acceptable to the Naval Academy to establish a total of at least 24 semester hours of credit for the year's work. College credits which have been used to offset deficiencies in a high school certificate will not be counted toward meeting the requirements for an acceptable college certificate.

Any candidate who is at all uncertain as to his ability to qualify by the college certificate method is strongly advised to take the entrance examination. However, failure to score acceptably on the entrance examination will disqualify the candidate for entry in that year.

QUALIFYING PHYSICALLY

The Chief of Naval Personnel, Navy Department, Washington 25, D.C., will send to each duly nominated candidate an authorization designating time and place of physical examination. Physical examinations are conducted at specified naval hospitals, and other specified naval activities in various parts of the United States. Candidates are required to be physically fit, well-formed, and of sound constitution. The physical requirements are exacting. The best interests of the Government, the Navy, and the individual demand that they be so.

Detailed information concerning the physical requirements and the list of places at which examinations are given is contained in the pamphlet "Regulations Governing the Admission of Candidates into the United States Naval Academy as Midshipmen," which may be obtained from the Chief of Naval Personnel or from the Naval Academy.

General Information

PAY AND ALLOWANCES

The pay of a Midshipman is $111.15 a month ($1,333.80 a year), commencing at the date of his admission. The purpose of this pay is to cover expenses associated with training at the Naval Academy, including the following items:

a. Prescribed uniforms and required clothing.

b. Textbooks and equipment.

c. Sundries (for cleanliness, health, and relaxation).

d. Services (laundry, tailor, cobbler, and barber).

e. Moderate allowance for extracurricular activities (to broaden professional background and competence).

f. Leave money (provided a sufficient balance is maintained in the account).

g. Moderate allowance to maintain outfit.

h. Funds to purchase necessary uniforms and equipment for graduation outfit so that the graduate will be in all respects ready to assume duties as a commissioned officer.

In addition, there is a ration allowance at the rate of $1.35 per day intended to provide board. It is used entirely for that purpose.

Midshipmen are expected to live frugally and within the limits of their pay. Maintenance allowances are designed to meet normal demands. Through wise use of pay, it is possible to have funds available to meet expenses during annual leave periods.

Medical, dental, and hospital services are furnished without cost to all midshipmen in a fashion similar to services furnished to other personnel of the Navy on active duty.

ENTRANCE DEPOSITS

In order to defray part of the initial outfitting, candidates upon admission to the Naval Academy must deposit the sum of $300 (exceptions are made in cases of extreme hardship down to $100 minimum). In addition, the Government advances $600 for the purpose of outfitting, such advance constituting an obligation against the individual account until sufficient credit has accumulated to liquidate the advance. The advance is systematically liquidated at a rate of $20 a month, commencing with October of the second year in the Naval Academy.

The Naval Officer's Career

A WAY OF LIFE

The continuation of our way of life in a free society is dependent on all of our armed forces. One of these arms is and will continue to be the Navy—a Navy comprised of such elements as nuclear-powered ships, fleet ballistic missile submarines, strike forces built around large aircraft carriers, and amphibious assault forces.

Typical Navy tasks and missions in the news today include direct local support of United States policy as typified in Southeast Asia and the Mediterranean Sea; exploration and research in the Antarctic; submerged polar probes and world circumnavigation by nuclear submarines; and the plumbing of the oceans' depths by bathyscaphe. To meet commitments such as these, the Navy will require men of vision, dedication, and ability.

The naval officer presents many faces to the world—Fleet Commander, engineer, scientist, diplomat, educator. His is not just a job, but a way of life—a career dedicated to the service of the United States carrying with it high professional prestige and the opportunities for broad experience—a career which rewards the industrious, the sincere, the adventuresome, and the imaginative. The Navy is not a career field for those who prefer a soft life or shy away from challenges.

It has been said that the three great dedicated callings of our time are the religious, the military, and the educational. During the course of a military career the naval officer is often called upon to play the dual role of the educator and military leader, and to work hand in hand with the religious leader.

FIRST DUTY

Upon graduation and commissioning, an officer has taken the first of many steps in his naval career. His practical and theoretical education continue, however, for as long as he is in the Service. From graduation day forward, he will continue to prepare himself for assignments of greater responsibility and professional attainment by acquiring practical experience ashore and afloat and through advanced academic work. The extent of his attainment is limited only by his own ability, initiative, energy, and resourcefulness, commensurate with logical career planning.

The graduate's first career opportunity comes in his choice of branch of the Service. The priority assigned his individual preference is dependent upon his standing in his class, the needs of the Service, and his personal qualifications, but every attempt is made to assign him to the duty and locality of his first choice.

A Naval Academy graduate may expect to be commissioned an ensign in the line. Wearing above the stripe on his sleeve the star that indicates he is in the line of command, he may elect assignment to a surface ship in either the amphibious, antisubmarine, or striking forces; elect and qualify for training as a naval aviator; or elect and qualify for submarine training in the underwater Navy.

Graduates so desiring will be ordered to flight training immediately after graduation leave. Likewise, submarine or nuclear power training will be immediately available to selected graduates desiring to enter those specialties.

Other graduates of the Naval Academy may become ensigns in one of the staff corps. Wearing the special device of the Supply Corps or Civil Engineer Corps, they will receive further education prior to reporting for duty in their chosen specialty. Still others, commissioned

USS *Long Beach*—Nuclear-powered missile cruiser.

as Second Lieutenants in the Marine Corps, will receive basic training and then be assigned Marine Corps duty ashore or afloat.

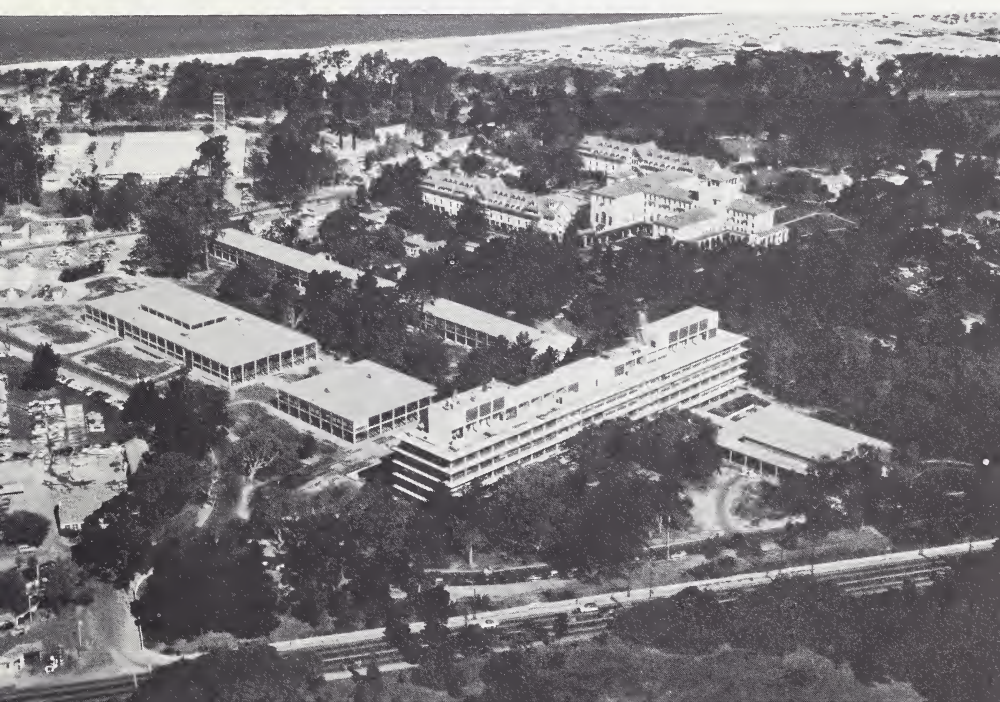
OFFICER EDUCATION AND TRAINING

The Navy sponsors a wide variety of courses, conducted at naval and civilian institutions, designed to equip officers for their naval duties and to prepare them to assume higher responsibility in the service of the United States.

Navy functional and basic technical courses normally afford the first postcommissioning training of officers. Mostly of short duration, they are in such fields as communications, gunnery, antisubmarine warfare, damage control, test pilot training, electronics, and amphibious warfare.

After the first tour (3 to 6 years) of operational duty with the Fleet, every qualified Naval Academy graduate may expect orders to graduate school for one or more years. Line officers will be ordered to school in one of the fields of mathematics, physics, management, or international relations. Staff Corps officers may request graduate education appropriate to their specialties. After the first year, which presents the opportunity to qualify for a master's degree, about half of the officers may expect to continue for a second or third year. They may select studies such as nuclear, marine, or aeronautical engineering, advanced science, middle management, and naval intelligence. For the best qualified, the way is open for a doctorate. Courses are conducted at the U.S. Naval Postgraduate School, Monterey, Calif., the Naval Intelligence School, Washington, D.C., and various civilian institutions such as Rensselaer, Stanford, Princeton, Carnegie Tech, and M.I.T.

U.S. Naval Postgraduate School, Monterey, Calif.



OFFICER CAREER PATTERNS

An officer largely determines his own career pattern through his selection of assignments ashore and afloat, the advanced studies undertaken, and, of course, by his performance.

Tours of operational duty with Fleet components are alternated with assignments to bureaus, offices, and activities in the Navy's vast shore establishment. Experience at sea is of prime importance to the career naval officer. At sea he becomes a mariner and a leader. The early years of experience at sea form a basis for his career. Assignments are varied and interesting, and include the opportunity to work with the civilian employees of the Armed Forces as well as with members of other Services. In all assignments, individual preference is given careful consideration.

Officer careers continue along many paths, depending upon individual experience and background. A line officer may return to sea as a head of department in a destroyer or commanding officer of a smaller combatant vessel. Line officers who are aviators may expect to resume duty in an aircraft squadron based in a carrier or ashore. Others qualified in submarines will continue in duties preparing them for submarine command, which comes after about 12 years of commissioned service.

Every officer may expect to serve in billets in which his naval education will be most valuable. In addition, line officers aspiring to command of ships of the Fleet and aircraft units will serve in a variety of ships or aircraft in different capacities, as well as in staff and planning billets afloat and ashore, to further prepare them for command. Officers wishing to concentrate in fields such as engineering or naval intelligence may so request, and serve subsequent tours of duty more restricted to their special qualifications. They are apart from officers of the Staff Corps, who had previously determined to channel their careers in specialized fields.

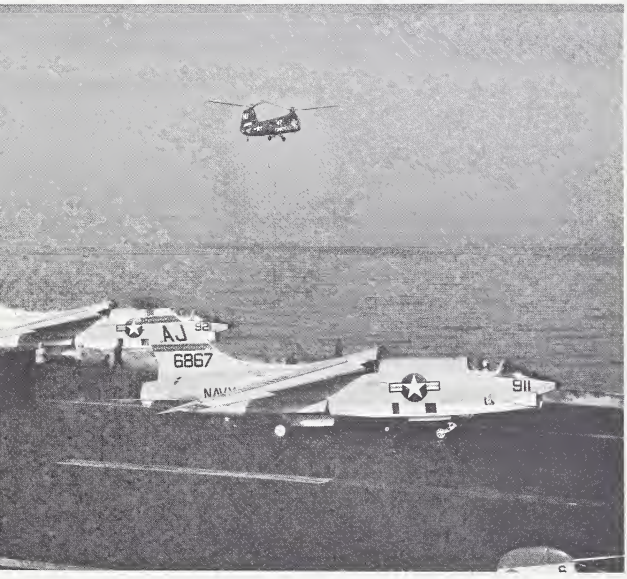
Many line officers qualify for a sub-specialty which they exercise during periods of shore duty. These specialties include such varied fields as naval intelligence, oceanography, communications, meteorology, nuclear engineering, and aeronautical engineering.

The great majority of Naval Academy graduates remain eligible for Fleet command. After about 15 years of service, in the rank of lieutenant commander or commander, and again in the rank of captain, many will enter one of the Service war colleges for courses in strategy, logistics, and staff planning. Throughout the rest of their careers as commanders, captains, or in flag rank, at sea and in supporting naval installations ashore, naval officers fill positions of responsibility and leadership in the service of the Navy and the United States.

F8U "Crusader" launched from USS *Forrestal.*

Outer space—the
New Frontier for
the United States Navy.

Guided missile destroyer.



Spotted and ready.

Polaris submarine.

Important Dates for Candidates

1962

July 1	The Navy Department begins officially accepting the names of candidates nominated for admission in the following year.
	In this month, the U.S. Civil Service Commission holds the first of several special competitive tests for Members of Congress who utilize this means of selecting their candidates.
December 1	Administration of College Entrance Examination Board Tests.

1963

January 1	Closing date for the receipt of nominations of foreign candidates.
January 12	Administration of College Entrance Examination Board Tests.
February 1	Closing date for the receipt of nominations of candidates.
March 2	Administration of College Entrance Examination Board Tests.
Dates to be announced	Bureau of Naval Personnel will notify candidates of results of College Board tests.
Dates to be announced	Date physical reexaminations will commence at Naval Academy for candidates authorized to report for same.
June 26	Date on which qualified candidates will be authorized to report at Naval Academy for appointment as midshipmen.

Academic Calendar 1962–1963

First Term

24–26 August	Parents' Open House, Class of 1966.
Monday, 27 August	First term recitations begin, Fourth Class.
Wednesday, 5 September	Leave and summer training ends, First, Second, and Third Classes.
Monday, 10 September	First term recitations begin, First, Second, and Third Classes.
11–15 December	Board of Visitors.
Friday, 21 December	Christmas leave begins.
Thursday, 3 January	Christmas leave ends.
Saturday, 19 January	Examinations begin.
Friday, 25 January	Examinations end.
Friday, 25 January	End of term leave begins.
Sunday, 27 January	End of term leave ends.

Second Term

Monday, 28 January	Second term begins.
Thursday, 21 March	Spring leave begins.
Sunday, 24 March	Spring leave ends.
Monday, 20 May	Examinations begin.
Saturday, 25 May	Examinations end.
Friday, 31 May	June Week begins.
Wednesday, 5 June	Graduation.

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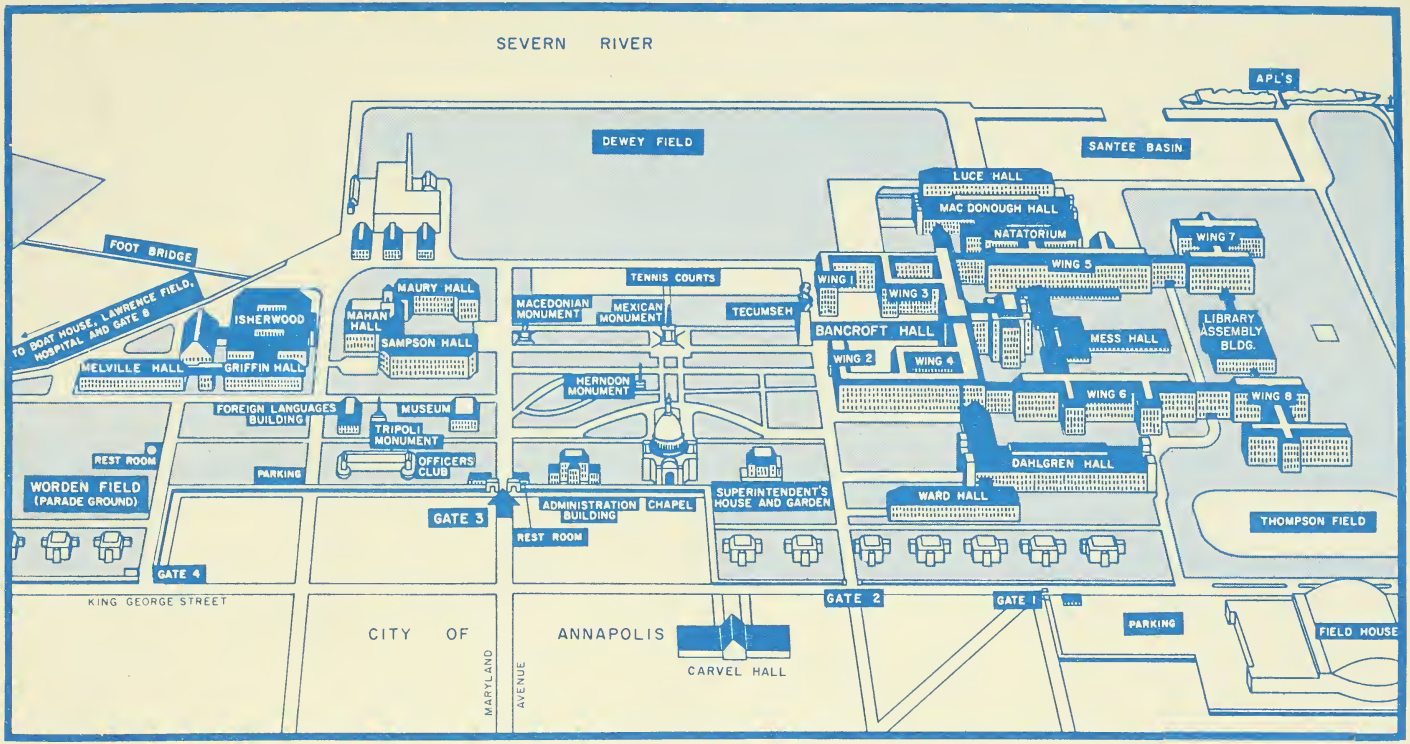
The United States Naval Academy



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